MYRMECIA

News Bulletin of the Australian Entomological Society Inc.
Volume 37, Part 4, November 2001
Australia Post Print Post Publication PP242296/00144. Price $5
ISSN 1323-6032

AUST. ENTOMOL. SOC. EXECUTIVE ADDRESS
Australian Entomological Society Executive
c/- Institute for Horticultural Development
Private Bag 15
Ferntree Gully Delivery Centre VIC 3156
AUSTRALIA

SOCIETY WEB SITE
http://www.agric.nsw.gov.au/Hort/ascu/myrmecia/myrmecia.htm

Patron
His Excellency, The Right Reverend Dr Peter Hollingworth AC OBE, Governor-General of the Commonwealth of Australia

OFFICE BEARERS

President
Assoc. Prof. A.D. Austin
University of Adelaide,
Waite Campus, Private Mail Bag 1,
Glen Osmond, South Australia 5064

Vice President
Dr P.M. Ridland
c/- Executive Address above
Ph (03) 9210 9222
Fax (03) 9800 3521
Peter.Ridland@nre.vic.gov.au

Secretary
Ms N.M. Endersby
c/- Executive Address above
Ph (03) 9210 9222
Fax (03) 9800 3521
Nancy.Endersby@nre.vic.gov.au

Treasurer
Mr I.D. Endersby
56 Looker Rd
Montmorency VIC 3094
Ph (03) 9435 4781
Fax (03) 9435 4781
endersby@mira.net

Public Officer
Dr E. Jane Wright
CSIRO Entomology
GPO Box 1700 Canberra ACT 2601
Ph (02) 6246 4183
Fax (02) 6246 4202
e.jane.wright@csiro.au

THE COVER

Greg Slevin won the insect illustration competition at the Annual Meeting in Darwin with the picture on our cover. Can you identify the beetle?

Promotions Officer
Dr Glynn Maynard
AQIS
PO Box 1006
Tullamarine VIC 3043
Ph (03) 9338 6371
glynn.maynard@aqis.gov.au

Chief Editor
Dr Peter Allsopp
Bureau of Sugar Experiment Stations
Private Bag 4, Bundaberg, DC 4670
Ph 07 4132 5200
Fax 07 4132 5253
pallsopp@bses.org.au

Technical Editors
Dr A.L. Bishop
Horticultural Research Station
Box 581 Gosford NSW 2250
Ph (02) 43481928
Fax (02) 43481910

Dr K.L. Walker
Museum Victoria
GPO Box 666E
Melbourne Vic 3001
Ph (03) 8341 7432
Fax (03) 8341 7750
kwalker@mov.vic.gov.au

Dr A.R. (Tony) Clarke
Australian School of Env. Studies
Griffith Uni. Nathan Campus,
Nathan, 4111, Qld.
Ph & fax: (07) 3875 3846
T.Clarke@mailbox.gu.edu.au

Dr A. Andersen
CSIRO Wildlife & Ecology
Tropical Ecosystems Research Centre
PMB 44, Winnellie NT 0821
Ph (089) 22 1727
Fax (089) 47 0052
Alan.Andersen@terc.csiro.au

SOCIETY SUSTAINING ASSOCIATES

Australian Entomological Supplies
Aventis Crop Science
Integrated Pest Management (Bugs for Bugs)
Monsanto
Syngenta Crop Protection Pty Ltd

MYRMECIA

MYRMECIA WEB ADDRESS:

http://www.agric.nsw.gov.au/Hort/ascu/myrmecia/myrmecia.htm

CONTENTS

Editorial	1
Order of Australia	2
AGM Reports	3
Student Forum	8
FASTS	9
CHAEC	10
Aphid Symposium	11
HV Brown Beetle Collection	11
Regional News	
Australian Capital Territory	14
New South Wales	16
Northern Territory	18
Queensland – North	19
Queensland – South	20
South Australia	24
Tasmania	25
Victoria	26
WesternAustralia	28
PapuaNewGuinea	29
Obituary and Notices	30

NOTICE

Statements made in *Myrmecia* do not necessarily represent the views of the Australian Entomological Society. Items printed herein should not be reproduced without permission of the author of the material.

COPY DEADLINE FOR NEXT ISSUE

Material for publication in our February 2002 issue should be in the hands of the Editor before **Friday 18 January2002**.

All material should arrive by e-mail at: laurence.mound@csiro.au; fax:02 6246 4264

EDITORIAL

The future of *Myrmecia* seems to be in question yet again. Readers should note the Treasurer's Report below, indicating that our AGM at Manly decided to ask Members of the Society to choose, when they next renew subscriptions, whether to continue to have *Myrmecia* as hard copy, or to read it only on our website. Moreover, students paying a reduced subscription would be allowed only the web version. The AGM was told that this would reduce the cost of producing *Myrmecia*, although no estimate was obtained from our Printer of the effect on production costs of a shorter print run, nor is any estimate available from our Distributor of any possible increase in handling charges for two distribution lists (*AJE* with *Myrmecia* and *AJE* alone). The Vice President states in his report below that *Myrmecia* serves a vital role, because without it our Society would be much more fragmented. Despite this, and our agreed objective of increasing our membership, we are considering removing this news bulletin from our potential successors, our students. Reports by both the Treasurer and the Editor of *Myrmecia* are given below indicating that the total production costs of *Myrmecia* are much less than the costs of editing our primary journal, *AJE*. Before we throw the baby out with the bathwater, I suggest that urgent consideration be given to how we can improve the financial position of *AJE* itself. Many years ago, when I took on the responsibility of reorganising the journals of the Royal Entomological Society of London, I was assured that such publications could never be financially viable. We closed the old journals, including the venerable *Transactions*, created three new, market orientated, journals, and ceased employing an editorial assistant. A group of dedicated scientists then ensured that these journals became, and remain, the major source of income to that Society. But this was not simply a marketing and management exercise; it involved re-thinking many traditional practices in information acquisition and presentation, also the relationship of the journals to the Society members. Perhaps it is time for the AES to reconsider some of its own publications practices and objectives. For example, our Society editors and referees insist that the latin name of an organism must be followed by its original

author, and woe betide you if this author's name is not in parentheses when your combination of genus and species names is not that published originally! This was a valuable practice 100 years ago, when catalogues and the Web were not available. But we have a full list of Australian plant names available in book and electronic forms, and similar data for many insect groups. If you actually need the original author of a latin name, a quick Web check with <google.com> usually finds it. I have just used this search engine to generate within 5 seconds multiple references to each of the latin names on the back cover of the last issue of *AJE*. I fail to see the virtue in printing inessential information that is, moreover, meaningless to all but an esoteric few. You all know the sort of organisms I am referring to if I write of *Eucalyptus* or *Scirtothrips*; if you do not, then I doubt if the addition of L'Herit and Shull will help you. Curiously our referees who demand such items, do not ask for Myrtaceae or Thripidae, although these place any observations made on the organisms into a secure biological context. The major and financially profitable international journals in which I have published recently (*International Journal of Plant Science*; *Ecological Entomology*, *Systematic Entomology*) have not made such pedantic demands, whereas several journals with lower circulation (*New York Entomological Society*; *Entomologist's Monthly Magazine*) still do. Although in themselves trivial, such an editorial focus possibly indicates a particular 'mind-set'. The profitable journals are concerned primarily with the message of their scientific articles - is it original, interesting and hence saleable. Some use modern methods to speed the delivery of information, referees receiving and responding to manuscripts by e-mail, and proofs being corrected on the Web. Perhaps we need to think more about the baby and its future, and less about its bath.

LAM

On 20th April, at Government House, Queensland,
H.E The Governor, on behalf of Her Majesty,
appointed three Members of our Society as
Officers in the General Division of the Order of Australia:
Ian Common, for services to Entomology;
Dan Papacek, for services to the citrus industry particularly through IPM;
Don Sands, for services to the horticultural industry through biocontrol.

AES EXECUTIVE REPORT

On behalf of the Core Executive, I would like to thank the New South Wales Organising Committee for putting on this excellent scientific meeting.

The first year for a new Executive is always a tough one. Much of our first year has been spent coming to grips with the numerous challenges confronting the Society. The core executive formally met 12 times since the last AGM. The strong support and wise counsel of our President, Andy Austin, has been of great help to us on a whole range of issues.

The highlight for the Society this year has been the acceptance of our bid for the 22nd International Congress of Entomology. The success of the Congress will require substantial input from our members, but I am sure that the benefits to the Society will be immense. Myron Zalucki will be reporting to the Society on the progress to date for ICE.

The main financial issues facing us this year have included the ongoing re-negotiations for the Journal contract with Blackwell Science Asia, the onset of GST and the imperative need to ensure that the Society remains financially viable. These important matters will be dealt with in detail in the Treasurer's report.

A recurring theme in previous Executive Reports has been the need for the Society to grow and develop. The Core Executive felt that it was an appropriate time for the Society membership to consider how the Society should be developing. Our President will be launching the strategic planning process at this meeting.

The Journal is our most visible manifestation to the outside world and, in the rapidly evolving world of science literature, it is vital that it increases its impact factor. It is vital that members support the Journal by submitting more high quality manuscripts. On behalf of the Society, I thank our Chief Editor, Peter Allsopp, and his Technical Editors, Alan Andersen, Alan Bishop, Tony Clarke and Ken Walker, for their invaluable contribution to the Society.

Myrmecia serves the vital role in communication of entomological news within the Australian entomological community. Laurence Mound has continued to edit *Myrmecia* with élan. Without his infectious enthusiasm and commitment to the News Bulletin, the Society would be a much more fragmented body. Again, it is my privilege to thank Laurence on the Society's behalf for his efforts for our Society.

In future, more and more of our business will inevitably be conducted on the Internet. Murray Fletcher has again served the Society well as webmaster and we thank him for his continuing efforts

This year, the Society has become a full financial member of FASTS (Federation of Australian Scientific and Technological Societies). Andy Austin represented the Society at both Science meets Parliament days. He will be reporting to you in more detail about the value of these meetings specifically and of our membership of FASTS in general.

Finally, I thank the members of the executive and regional councillors for their efforts on behalf of the Society. Their time is much appreciated. In particular, I thank the members of the core executive in Melbourne for their support and diligence. Ian Endersby has done a magnificent job as Treasurer and has provided vital counsel on many issues that we have faced. Nancy Endersby has been a most efficient and conscientious Secretary and has been ably assisted by Violeta Traicevski.

Peter RIDLAND
Vice President

AES 32nd ANNUAL GENERAL MEETING

Tuesday 25th September 2001, Manly Pacific Parkroyal Hotel, NSW. Members present: 42. Apologies: 4. Proxies 6 received.

The deaths of three members were noted: Douglas Waterhouse, Ebbe Nielsen and Kay Lindsay

The Vice President, **Peter Ridland**. thanked Robert Spooner-Hart and the Conference Organising Committee on their supreme efforts in organising a successful conference under extreme difficulty. He noted that the ICE will be a major milestone for the AES and presented the AES Executive Report.

The Treasurer, **Ian Endersby**, reported that council approved a membership fee increase for 2002. The society has registered for GST. Discussion arising from the Treasurer's report in relation to cutting costs: G. Bedford suggested that members have the option to receive the Journal electronically to reduce costs of printed copies. A. Austin explained that the contract locks the Society in to a minimum number of printed Journals and that electronic access will be available soon to all members as well. A. Austin mentioned that any surplus arising from the ICE would come to the AES, but it should not be used to prop up the Society's finances. Any Conference or ICE surplus should be used to set up a foundation to fund activities beyond the normal running of the Society. G. Gurr asked whether a loss from the ICE would

be the responsibility of the AES. M. Zalucki responded that this would be so, but insurance that covers some aspects has been purchased. H. Nahrung asked about the role of the Editorial Assistant. D. Williams asked if there was scope to increase the sales of the Journal to institutions. Blackwell Science has found that there is a limited market. K. Houston suggested that a harder bargain be struck for Journal royalties, approach insecticide companies for sponsorship when their products are "advertised" in Journal articles and change our attitude as to how the Journal is produced. D. Williams noted that there was not much scope to cut Society costs so a membership drive should be the next step.

The President, **Andy Austin**, presented a report on the society's membership of FASTS and his attendance at the 'Science Meets Parliament' day, and officially launched the beginning of a strategic planning exercise for the society. The plan will be finalised by the time of the ICE in 2004 and will set the direction for the future of the Society. Andy Austin, Peter Allen and others will be part of the strategic planning committee. The process is likely to begin with a survey of all members.

Myron Zalucki presented a report on the International Congress of Entomology to be held in Brisbane from 15-21 August 2004. 4000 delegates could be expected to attend. Progress to date: Brisbane Convention and Exhibition Centre has been booked; honeypot ant logo has been designed and will feature soon on a promotional postcard; a web site is under development and will be functional soon <www.ice2004.org>; Ashley Gordon of Carillon has been appointed as PCO; accommodation has been reserved; sponsorship has been obtained from Brisbane Tourism and other organizations; Committees have been formed as follows: Science (Chair, John LaSalle), Promotions (Chair, Tony Clarke), Social Program (Chair, Margaret Schnieder), Finance (Max Whitten).

The ICE Executive will consist of M. Zalucki, A. Austin, P. Ridland, J. Cullen and the PCO.

Five or six plenary speakers will be invited. Symposia will include workshops, debates and much publicity for entomology to the general public. Andy Austin commended Myron Zalucki for his efforts towards the ICE.

The Phil Carne Prize was awarded to Darrell J. Kemp (School of Tropical Biology, James Cook University, Cairns) for the best student paper published in the *Australian Journal of Entomology* 2000/2001: Age-related site fidelity in the territorial butterfly *Hypolimnas bolina* (L.) (Lepidoptera: Nymphalidae), Vol. 40, Issue 1; February 2001.

Report of the Conference Organising Committee

Robert Spooner-Hart presented a report on behalf of the organising committee for the 32nd AGM and Scientific Conference. The meeting was originally intended to be a joint meeting with the Entomological Society of New Zealand, but this was not possible as it coincided with the 40th anniversary of the NZ Society. However, it was pleasing to see some delegates from New Zealand at the Conference. Manly was chosen as the Conference venue due to a lack of college accommodation at UWS caused by the 4 term academic year. The committee budgeted on 130-140 delegates and would have reached this number if not for the collapse of Ansett. Approximately 30 people were unable to attend due to lack of flights and final numbers reached 112 delegates. The organising committee was grateful to those who made alternative transport arrangements to get to the Conference and their efforts made the Conference a success. The Conference is likely to run at a loss, but the Centre for Horticulture and Plant Sciences at University of Western Sydney has generously offered to cover the costs. Robert thanked his organising committee, the UWS Conference Organisers (Linkwest Commercial Services) and Mary Cannard (IT and technical support). He also thanked everyone who came to the Conference and made presentations.

33rd AGM and Scientific Conference

The AES Executive has accepted a proposal that the Conference be held at the Esplanade Hotel, Fremantle, Western Australia from 22-27 September 2002. The Organising Committee will be: Owain Edwards (Chair), CSIRO Entomology; Terry Houston, Western Australian Museum; Jonathan Majer, Curtin University; John Matthiessen, CSIRO Entomology; Debbie Thackray, Agriculture Western Australia

TREASURER'S REPORT

Your new Executive was faced with three challenges when it took office: the implementation of GST, the expiry of the Blackwell contract, and the automatic upgrading of our FASTS membership from Associate to Full.

Most of the Society's expenditure attracts GST and so members would have to cover the increased costs either as a GST impost on fees or as a fee increase. We decided to register for GST, in spite of its additional workload, so that those Institutions that pay membership fees on behalf of some of you can claim the GST credit.

When the Society accepted Blackwell as its publisher for the journal it was predicted that increased sales to overseas institutions would eventually result in lower costs to Members. Due in part to changing library practices and syndication of electronic subscriptions this has not occurred. As we renegotiate the Blackwell contract we are facing substantial cost increases and Blackwell are no longer willing to fund the printing of *Myrmecia* as they have done in the past.

For a number of years the Society has been running at a deficit but this has been masked from time to time by conference surpluses. This is not a sustainable way to operate and the Core Executive was forced to make a number of tough recommendations to the Council at its meeting prior to the AGM.

After lengthy debate it was reluctantly agreed that Subscriptions for 2002 will be raised to:

Full Member - $85 + 8.50 GST = $92.50
Joint Member - $90 + 9.00 GST = $99.00
Student Member - $42.50 + 4.25 GST = $ 46.75
Retired Member - $42.50 + 4.25 GST = $ 46.75.

We will retain rebates of $5 ($2.50 concession) for payment before 31 December, also the $5 ($2.50 concession) for new members. In spite of these fee increases the Society will still experience a deficit this year but the Executive has been charged with identifying cost savings to reduce it. The long term solution is to recruit new members from that body of entomologists who have not joined their professional Society, and that is a task in which every existing member can share.

The easiest way to appreciate (sic) how your subscription is spent is to view the 2002 budget on a per capita basis for a Full Member, before GST:

AJE	63.00
less Royalties	(5.50)
AJE Editorial Assistance	11.00
AJE Editorial Expenses	0.70
Myrmecia production	6.00
FASTS	5.00
Statutory Fees	0.25
Audit Fees	1.25
Credit Card and Bank Fees	1.20
Administration Expenses	0.75
Executive Travel	1.40
AGM and Awards	2.00
Early Payment Rebate	1.30
New Member Rebate	0.30
Student Subsidy	5.50
Retired Subsidy	7.50
less Interest Income	(2.50)
TOTAL	99.15

It was also decided that from 2002 *Myrmecia* would be offered in an electronic format as well as in printed form. This could result in substantial savings for printing costs. Your subscription renewal form will give you the option of specifying which format you want. Once an electronic version of *Myrmecia* is available the hard copy option will no longer be available to Students claiming the concession rate.

CHIEF EDITOR'S REPORT

The *Australian Journal of Entomology* continues to be the premier vehicle for the publication of entomological research in the south-west Pacific region. It can only maintain this position if it receives quality manuscripts and minimizes the time between submission of a manuscript and publication of the paper. If it is to continue to be THE place to publish Australasian entomological research, members must give it support. They can do this by sending good-quality manuscripts and by assisting in a speedy refereeing process. We want to publish papers that are not simply descriptive, so papers should attempt to draw out the broader implications of either applied or theoretical nature. Descriptive papers with no obvious purpose are not acceptable. I encourage the submission of many more high-quality research and, especially, review manuscripts in the future. However, please have your drafts read by colleagues BEFORE the manuscript is submitted - quality manuscripts will be processed quicker and with a more positive attitude.

Secondly, if the Journal is to give good service to authors, we need the cooperation of referees. It is not uncommon for Technical Editors to receive one referee's report within a few weeks of sending the manuscript; that is great! However, the other often arrives after >3 months and after a lot of time wasted trying to contact the reviewer. Some reviewers never reply, and we know they aren't dead! If you are asked to referee a manuscript and can't do it within a reasonable time (6 weeks), then don't pretend that you are dead, resuscitate yourself, say that you are busy and return the manuscript, so that another reviewer can be found.

The number of manuscripts received during the year increased – 78 received, 59 accepted, compared to 66 and 46 last year. This increase is pleasing and, perhaps, indicative of the Journal's higher profile. Acceptances have been relatively constant through the year, with all issues being filled (or over filled) according to our contract with Blackwells. Volume 40 Parts 3 and 4 (due out in August and November) have been filled and Volume 41 Part 1 already has 10 papers accepted. Although

this increased acceptance will lengthen our accept-to-publish interval, it does indicate the continued success of the journal (and it reduces the tension I feel when faced with potentially slim issues!).
While the number of paper subscriptions has continued to decline, due to the continued pressure on library budgets, new subscribers were gained in Fiji, Germany, Hong Kong and New Caledonia. The decline is offset by the increasing online subscriptions developed by Blackwells through licensing arrangements with library consortia. *AJE* is currently available to 456 institutions around the world through these arrangements, and negotiations are taking place with consortia of libraries in the USA, Italy, Denmark and Japan. Tangible benefits are the maintenance of paper subscriptions despite increasing pressures on library budgets, the potential increase in citations due to a wider readership, and the usage data that will indicate which topics are of interest to readers. *AJE* is also available electronically through Blackwell *Synergy* at *www.blackwell-synergy.com*. Researchers can access article abstracts free of charge and can access the full text through an online subscription or by purchasing individual articles online. All members will soon have access to the full text of the journal electronically.
The total royalty payment to the Society for the 2000 volume, comprising 8% of all non-Society revenue, was $4485, a small decrease from 1999. The cost to members remained steady at $44 for the 2000 volumes of the *Journal* and *Myrmecia*.

Electronic initiatives
The *Journal's* home page (*www.blackwell-science.com/products/journals/aen.htm*) continues to have increasing numbers of 'hits'; for example, 721 in August 2000 and 715 in October 2000. Most accessed information on the aims and scope of the *Journal* and the table of contents, but there was considerable interest in the instructions for authors.

Promotion
Blackwell Science continues to target the *Journal* at exhibitions at relevant major conferences and meetings, direct marketing through promotional material, especially in Europe, North America and East Asia, and through advertising in other Blackwell Science journals. All corresponding non-member authors are sent a free copy of the issue in which their paper appears and a letter offering an introductory discount of 25% on subscription. This offer is extended to their co-authors, colleagues and affiliated institutions. A promotional postcard has been produced. The front has a full colour image and minimal text, and the back has descriptive information, editors' names, personal pricing and contact details.

Editorial team
Alan Andersen, Alan Bishop, Tony Clarke and Ken Walker have continued to give excellent service to the society as Technical Editors. The editorial assistance of Jenny Allsopp and the input of Catherine Hunt, Alma Ross and Rosie Rush and the production team at Blackwell Science Asia have been vital in the smooth running of the journal and in meeting production schedules. The success of the journal is the result of their hard work and I thank them all. The technical editors and I also thank the Editorial Board and the referees who have given expert opinion on manuscripts.

Peter G ALLSOPP

MYRMECIA EDITOR'S REPORT

Three issues concern me: production timing, *Myrmecia* content, and production costs.
Our production team, comprising the State Councillors together with the editor and Tish Silberbauer, produced the Bulletin on time throughout the year. Our production schedule sometimes involves a little editorial heckling to get copy, also occasional editorial sins (like losing a report provided by the Treasurer on Victorian entomology). For these I crave your indulgence. Some States fail to submit text by our deadline; or indeed do not respond at all. I recommend that Members take appropriate action!
Myrmecia content and objectives seem to me poorly defined. I suggest that Council should consider the following question. Are the responsibilities of Councillors to report on the activities of Society members in their areas, OR to report on entomological activities in their areas? I recommend to the Society that the second of these would be more interesting and useful, and moreover might attract additional members. For example, the only report of the considerable entomological activity at the Museum in Sydney was one that I solicited myself. Moreover, I have regular entomological contacts with Kununurra, Broome, Carnarvon and other far flung parts of this continent that never find a mention in *Myrmecia*. If Council agrees that we should try to gather reports on Australian entomological activities, rather than Society activities, then Councillors for each State will need to discuss with each other how to trawl effectively for information.

The cost of *Myrmecia* to the Society involved a total bill of about 7000 dollars this year. No distribution costs are allocated since *Myrmecia* is distributed with *AJE*, and there are no editorial charges against the Society. In considering the future of *Myrmecia*, Members and Council might care to contrast this situation with *AJE*, where editorial costs alone, including provision of an administrative assistant at Bundaberg, are almost twice the total production costs of *Myrmecia* (see Treasurer's Report).

Laurence MOUND

AES Outgoing Council Report

Cash flow statement for 2000 shows a total income of $49,253.40 and expenditure of $58,123.72. Opening balance at 1 Jan 2000 was $75,184.70 and closing balance at 31 Dec 2000 was 68,209.04. The AES has been running at a deficit for some years, occasionally masked by some conference profits. The AES will be entering a new contract with Blackwell Science Asia in which cost per head for the Journal has increased.

The Treasurer proposed that subscription fees be increased (Full $100 + GST, Student/retired $50 + GST), however Council proposed that the increase be phased in gradually. Discussion ensued about ways to cut costs. Strategies could include some electronic subscriptions for *Myrmecia*, an increase in page charges for AJE to offset the amount required for editorial assistance, renewed efforts by Regional Councillors to recruit new members.

Andy Austin proposed that *Myrmecia* be offered to members electronically on the web page on a voluntary basis for full and retired subscribers, but that it be mandatory for student members to only receive an electronic copy. This motion was passed.

Only **Bugs for Bugs** have paid to continue as a Sustaining Associate of the Society. Other companies have not responded to correspondence. Council suggested that they could be asked to sponsor prizes instead of subsidising student members.

Tony Clarke is chair of the Promotions Committee for the ICE. A half day of the Congress will be devoted to an open forum of activities designed to promote entomology to all facets of the community. The AES has a new patron, His Excellency the Right Reverend Dr Peter Hollingworth, AC, OBE, Governor-General of the Commonwealth of Australia.

AES Incoming Council

The Executive will write to each Regional Councillor to provide information about their role and Council's expectations. Each Regional Councillor will be supplied with a list of members in their State. They may use it to organise local AES events and to identify local entomologists who are not yet members of the society.

Andy Austin proposed that circulation of messages to members by e-mail become more frequent, and that as many e-mail addresses in the database are out of date, members should be encouraged to fill in their new addresses on the next subscription forms.

P. Ridland called for the profile of the AES to be raised in each state by co-branding some seminars.

R. Spooner-Hart suggested that we encourage members of the Entomological Society of NSW to become AES members.

Conference prize winners

Best Student Oral presentation: Luke Rapley

Best Student Poster: Sarina Pearce

Insect Illustration Competition

1st Prize - Janine Gorton

2nd Prize - Monica Biondo

3rd Prize - Cherie Hare

Photographic Competition

1st Prize - Nichola Stevens

2nd Prize - Claire Stephens

CONSERVATION COMMITTEE

Although few activities have been carried out under the specific banner of the Conservation Committee, the six members have been active in their own right on insect and related arthropod conservation matters.

Alan Andersen has been particularly involved with pest ants, being on the scientific committees for:

Crazy ants on Christmas Island. These have infested about 15% of the Island's rainforest habitat, and have had an enormous impact where they occur, including eliminating the famous red land crabs. There is serious concern over a range of endemic vertebrates. A major campaign is underway to survey the infestation and to control it using chemical baits.

Fire ants in Brisbane. The Federal and State governments have committed $120 million to an eradication program, based on chemical baits.

Crazy ants and Big-headed ants in the Top End of the NT. Crazy ants are in eastern Arnhem Land, and are moving westward along riparian vegetation and patches of denser vegetation. They would be impossible to eliminate, so management if focussed on reducing spread by people. Big-headed ants have now been recorded in the

Kakadu township of Jabiru, and at the Cooinda resort. As the first phase of control operations, CSIRO has been contracted by Environment Australia to survey the extent of infestations.

Aside from pest ant involvements, Alan has continued to work with the Parks and Wildlife Commission of the NT to include data on invertebrates (particularly ants) in their conservation planning.

Don Sands and **Tim New** have recently completed the *Butterfly Action Plan* document, which has now been submitted to Environment Australia. It should be available by the end of the year. In addition, Don Sands has been working in conjunction with the Queensland Parks and Wildlife Service in order to improve the interaction between the Service and entomologists. Specifically, he has been looking at how adequately insects are protected within Park boundaries.

Jonathan Majer and **Robin Gunning** continued to serve on, respectively, the WA and NSW *Threatened Species Scientific Committees*, in which numerous invertebrate conservation issues were discussed and acted upon.

One area that the Conservation Committee has become involved in is the Lord Howe Island phasmid, which has been re-discovered on Balls Pyramid. The Conservation Committee has offered its services in an advisory capacity to the NSW National Parks and Wildlife Service, and is currently soliciting viewpoints on the matter for transmission to the Authority.

The Conservation Committee welcomes input or suggestions from Society members.

Jonathan MAJER

STUDENT FORUM

Congratulations to **Luke Rapley** (CRC for Sustainable Production Forestry and Uni of Tasmania) for winning the AES student paper prize for his talk "Identifying autumn gum moth, *Mnesampela privata*, behaviour associated with variation in defoliation of *Eucalyptus globulus*" and **Sarina Pearce** (Uni of Queensland) for winning the AES student poster prize for her poster "Spider ballooning in Australian agroecosystems". Congratulations also to **Nigel Andrew** (Macquarie Uni) for winning the prize for the best student talk at the recent Ecological Society of Australia conference in Wollongong. His talk was titled "Potential impacts of climate change: the effects of host plant and climate on insect herbivory".

Any students or recent students (ie. those that have just finished their postgraduate theses) who would like to express an opinion or to précis their research in Myrmecia, please contact me by email (lsilberb@metz.une.edu.au) or by phone (02 6773 2287).

Tish SILBERBAUER

PhD Synopses

Studies of slow-release formulations for semiochemicals in cotton pest management

Postgraduate researcher: Mr. David Britton.

Supervisors: Associate Professor Peter Gregg and Dr. Alice Del Socorro.

Funding: Cotton Research and Development Corporation

My PhD project aims to develop alternative means of controlling the most significant pest of Australian cotton, the cotton bollworm *Helicoverpa armigera* (Lepidoptera: Noctuidae). Conventional control of *H. armigera* in Australia relies on broad acre spraying of the crop to kill larval stages. Development of resistance to the more common and cheaper insecticides means that cotton growers are having to use more expensive chemicals, and the potential for control failure is increasing. In addition to these direct problems with broad acre spraying, the environmental hazards of increased pesticide use, and the associated problems with development of secondary pests and reduced levels of beneficial organisms in the crop mean that farmers are looking for alternative methods to control *H. armigera*.

Sex pheromones for *H. armigera* have been isolated and used to monitor male moth populations, but there has been little success with their use to control moth populations. Attempts at mating disruption by putting large numbers of pheromone dispensers in the field have not been successful, despite indications that mating activity in treated areas had been shut down. The main reason for this lack of success is that *H. armigera* is a very mobile species, and a large area would need to be treated to prevent the immigration of mated females from other areas. In addition to this, there is resistance from farmers to the use of rubber and plastic dispensers in the crop due to fear of lint contamination.

The formulation I am testing is based on Sirene®, a sticky polymeric substance that contains UV protectants and antioxidants to stabilise volatile pheromone and insecticide components. This formulation can be readily applied to plant foliage as 0.5ml droplets which maintain a steady release of pheromone components for up to three months. With the addition of an insecticide these droplets can then be used to kill attracted male moths which

contact the Sirene™ formulation. The cheap, efficient and "clean" nature of this formulation may allow for the treatment of very large areas of both cotton and other crops, which may in turn allow for control of *H. armigera* by both removal of male moths from the population and by mating disruption. There are many side issues with this, not the least of which is the issue of potential or existing resistance to any insecticides used in the formulation. *H. armigera* is already resistant to most of the currently available insecticide groups, such as those with contact toxicity like the synthetic pyrethroids. Many insecticides are also efficient repellents, which may reduce their usefulness in attract and kill formulations. Repellent effects are being tested for in field and laboratory observations. Much of the observation work for my project involves developing ways of quantifying male behaviour in the vicinity of pheromone lures in the field. Additional field research uses field wind tunnels and a mark-recapture system to determine the field efficacy of the formulations.

An additional extension of this project is to use the insecticide formulations in attract and kill lures that use plant-based attractant volatiles to kill both female and male moths. Peter Gregg and Alice Del Socorro are currently conducting research into suitable blends which may attract female and male moths to Sirene® lures.

I am two years into the field and laboratory work for this project; for more details see: http://www-personal.une.edu.au/~dbritton/index.htm.

David BRITTON
Division of Agronomy and Soil Science
School of Rural Science and Natural Resources
University of New England, Armidale, NSW, 2351
email: dbritton@metz.une.edu.au

Studies of pheromones of some insect pests

Postgraduate researcher: Mr. Samuel Lowor
Supervisors: Associate Professor Peter Gregg, Dr Alice Del Socorro and Dr. Chris Moore

The use of pheromones has some advantages, which include their non-toxicity, targeting of specific insect pests and sometimes few application times per season. Preceding the application of a pheromone however, a detailed knowledge of pest biology in the field, isolation, identification and correct formulation of the pheromone is needed.

With the aid of sophisticated and highly sensitive techniques, my PhD thesis aims at isolating and identifying individual and multi component pheromones which possibly control a wide range of activities in insect species of Bogong moth, *Agrotis infusa*, Rough bollworm, *Earias huegeliana* and the green mirid, *Creontiades dilutus*. Studies to be undertaken involve:

1. Discover the calling behaviour of virgin females of *A. infusa* and *E. huegeliana*;
2. Determine what age the females start to call;
3. Monitor the effect of some environmental factors on calling behaviour;
4. Study the behaviour of males in the presence of calling females in a wind tunnel;
5. Collect and identify the components of the female sex pheromones from airborne volatiles and glands of the three species. Blends to be prepared based on the identified components;
6. Study male behaviour in the presence of different blends of the synthetic pheromone obtained for the three species in a wind tunnel and;
7. Test different synthetic pheromone blends under field conditions using various and appropriate trap designs.
8. Find correlations between catches of adults of *A. infusa* using the pheromone blend and the level of economic damage to crops in an attempt to predicting when control measures have to be initiated.
9. Assess the potential of pheromones to detect, monitor, control or manipulate populations.

Work on this project started on July 2001 and I am currently developing cultures for pheromone collection and identification.

Sam LOWOR
Division of Agronomy and Soil Science
School of Rural Science and Natural Resources
University of New England, Armidale, NSW, 2351
email: slowor@metz.une.edu.au

FASTS 'Science Meets Parliament'

As President of the AES, I attended the 'Science Meets Parliament' days, held in November 2000 and August 2001. This annual event is rapidly becoming a major fixture on the national science calendar. It is organised by the Federation of Australian Scientific and Technological Societies (FASTS), primarily as an exercise in lobbying Federal politicians about science issues – science in high school, science teacher training, research funding, problems in Universities, business investment in science, the brain drain, and so on.

Each year, FASTS put together a detailed briefing program that occupies a full day and, having selected a number of priority issues, the scientists attending have a 20-40 minute meeting with two

politicians on the following day, to discuss aspects of the national science agenda, and lobby them to improve specific aspects of R&D in Australia. The 2001 event was judged to be very successful, with 180 scientists representing FASTS member societies meeting with about 140 politicians from both Houses of Parliament.

Is this event worthwhile? There is no definitive answer to this question, and certainly any gains do not happen in the short term. However, there is no doubt that 'Science Meets Parliament' is having a greater impact every time it happens. 2001 was the third such event and, in an election year with Science having a higher prominence than it has for a long time, many politicians were clearly very interested to hear about the issues being targeted by FASTS for 2001. These were 1) stimulating private investment in R&D through specific incentives and tax breaks, 2) stimulating interest in science teaching as a profession, 3) addressing the decline in government funding for Universities, and 4) developing initiatives with Government to better inform science-relevant ministries such as industry, health, defence, mining, and agriculture. In the words of the Speaker of the House of Representatives this year – there is no other group in Australia that commands the simultaneous attention of 140 politicians for the best part of a full day!

Where does Entomology fit into all this? The politicians with whom I met included Alexander Downer in 2000 and 2001, and Natasha Stott-Despoja in 2001. In a general way, I was able to raise with them the significant down-turn in Universities over the last 10 years, and the lack of funding for basic research, among other issues. Where possible, I used examples from our discipline - entomology. Certainly, Alexander Downer and Natasha Stott-Despoja now know that the AES is one of the largest non-medical scientific societies in this country, and that it is training and research in this area that underpins the control strategies initiated against such topical pests as plague locusts, European wasps and fire ants!

Andrew AUSTIN

Council of the Heads of Australian Entomological Collections (CHAEC)

The twelfth annual meeting of CHAEC was held at the Macleay Museum, University of Sydney on Sunday 23 September 2001. Eleven collections were represented, a little down because of the recent airline troubles in Australia.

Murray Fletcher introduced a discussion on the purpose of CHAEC. Many of the representatives on CHAEC are collection managers whilst some others are senior managers. CHAEC has a draft constitution developed in 1992 and a copy was tabled at the meeting. Membership was originally meant to be "Heads" who may appoint a deputy for meetings. The concept of the "head" of a collection, however, differs depending on the size of the organisation. For many of the smaller collections (the bulk of the membership of CHAEC) there is only one person associated with and responsible for the collection. This document is to be modified following discussion at this meeting. The original role was defined as "to promote all matters of interest to entomological collections in Australia and to increase cooperation and understanding between them".

The benefits of CHAEC include: Linkage between biodiversity and applied collections; help in maintaining support for smaller collections; improving communication between collections; increase awareness of smaller collections and thus help to secure their future; act as a focus for entomological collections matters; articulate priorities for curation, research, databasing, future planning and funding; deliver benefits to the community.

The long-term preservation of significant insect collections held in private hands was discussed. Although access to these collections is rightfully controlled by their owners, preservation of the collections after the death of the owner is not necessarily planned. This is an issue that has been discussed in the past and any action on the part of governments or societies can be seen as intrusive. It was suggested that a catalogue of all significant collections be attempted so that their long term preservation might be considered.

Rob Floyd gave an update on the range of database initiatives in Australia. Distributed database initiatives include the National Pest and Disease Database (recently renamed the Australian Plant Pest Database, APPD), the Online Zoological Collections of Australian Museums (OZCAM) and the Global Biodiversity Information Facility (GBIF). One of the central requirements for each of these is a master names list that, in the case of APPD and OZCAM, should logically be provided by ABRS through the Australian Biodiversity Information Facility (ABIF) web site. Related software development activities include the development of a web-based query system and database "wrappers" for the distributed data sets by CSIRO Mathematical and Information Sciences and similar software being developed by the Australian Museum. Steve Shattuck is developing software

to allow the query systems to interface with master names lists.

The web site has been relocated to http://flyaqis.mov.vic.gov.au/chaec/open.html and updated. Individual members were encouraged to provide metadata about their web sites to enable **Ken Walker** to keep the website up to date. A suggestion was made that the website be expanded to provide details of the content of members' websites (type catalogues, keys, databases, staff details, etc).

Keith Houston outlined the recent changes in the way that ABRS fund projects with greater emphasis on community benefits, defined and delivered outputs, electronic outputs. The ABRS URL should now read http://www.ea.gov.au/biodiversity/abrs/

The Chairman recorded his immense sense of gratitude for the work and effort of **Ebbe Nielsen** who started many initiatives in Australia, including CHAEC. His passing represents a great loss to entomology in Australia and the world.

Members present visited the Macleay Insect Collection during the lunch break. **Margaret Humphrey** led the visit and pointed out that taxonomists regularly identify, in the Macleay collection, primary type specimens which were thought long lost .

Murray FLETCHER, Chairman

SIXTH INTERNATIONAL SYMPOSIUM ON APHIDS

Australia was well-represented at this Symposium in Rennes, France, 3-7 September, 2001. Eight Australian scientists attended, representing CSIRO Entomology, Agriculture Victoria, and three Universities (Macquarie, La Trobe, and ANU). The conference speaker on the first day was **Tony Dixon** (East Anglia), who talked about the past, present and future of aphid biology. **Seamus Ward** (La Trobe) presented a paper discussing whether risky dispersal in aphids was an adaptation or a constraint using the sycamore aphid, *Drepanosiphum platanoidis*, as a model. Also on the first day, **Trudi Wharton** (ANU) presented a poster on life stage development of the Monterey Pine aphid, *Essigella californica*, which has recently been introduced into Australia.

On the second day, **David Stern** (Princeton) was the conference speaker discussing the developmental genetics of aphids. David proposed that the pea aphid, *Acyrthosiphum pisum*, should be developed as a genetic model for hemimetabolous insects. **Dinah Hales** (Macquarie) presented a paper on male mating performance in *Myzus persicae* in which she showed no evidence of sperm precedence, but rather that sperm of particular clones appeared to be favoured. Dinah's former student, **Alex Wilson** (California – Davis), presented a paper in which she used microsatellite markers to study sexual reproduction in long-term parthenogenetic lines of *Sitobion* spp. Alex also contributed to **Roger Blackman's** paper in which microsatellite markers were used to distinguish between *Myzus persicae* and *Myzus nicotianae*.

The third day was taken up by a wonderful trip to Mont Saint Michel and Saint-Malo. The conference speaker on the fourth day was Carol von Dohlen (Utah State), who presented the current thinking on the evolution of aphid-plant relationships. Also on the fourth day **Matt Sloane**, currently studying with Dinah, presented a paper on microsatellite linkage groups in *Myzus persicae*. One of Matt's most interesting findings was the lack of recombination in males of this species. Another paper of interest on this day was by **Takema Fukatsu** (NIAIST, Japan), who showed that some aphids in the Cerataphidini have had their bacterial endosymbiont replaced by a yeast-like symbiont.

The conference speaker on the last day was Hajime Ishikawa (University of Tokyo), who reviewed aphid symbiosis from the point of view of the symbiont's genome. **Owain Edwards** (CSIRO) presented a paper on aphid resistance in breeding lines of the model legume *Medicago truncatula*. The final Australian speaker of the conference was **James Ridsdill-Smith**, who presented a paper on the effects of several lupin alkaloids on the feeding and development of two aphid species, *M. persicae* and *Aphis craccivora*. Also on the last day, it was decided that the 7th International Symposium on Aphids would be held for the first time outside of Europe: in Fremantle, WA in 2005.

Owain EDWARDS

The H.W.Brown collection

Horace William Brown (1883- 1958) was one of the best known of the *old time* collectors. He was active in Western Australia in the 1930s and 1940s, eventually moving to Sydney. Before he died he sold part of his collection to Fred Fricke who lived in Bondi Junction. I had corresponded briefly with Fricke in the 1950s while I was still living in Perth and we had one exchange of insects which was unsatisfactory to both of us and I stopped corresponding. Some time in the early 1960s when I was visiting Sydney I went to his house but he was away and I spoke briefly to a woman I

assumed to be his wife.

In early July 2000 Clarrie Chadwick wrote to me from Sydney to let me know that Fricke had died and that his collection was being offered for sale. Clarrie gave me the name of Graham Owen who had already examined the collection. I contacted Graham and he faxed me his appraisal of its contents and the name of the solicitor, Mr Peter Murphy of Bondi Junction, who was settling the estate. I then phoned Murphy and arranged to meet him.

Consequently, I visited Sydney and met Murphy at his office on the 13th of July. Earlier, his Secretary had given me the key to the house in Ruthven Street and I walked there to look at the collection. The house is in a row of twenty terrace cottages and could be identified from the outside by lack of paint and its general run-down appearance. I heard later that they are worth in the vicinity of $600,000 each. Inside, the house was ramshackle. The electrical wiring consisted of cables running to all parts of the house from points attached to a wooden board fixed to the upper door-frame of the front downstairs room. I have no doubt that if this set-up were to be inspected it would be condemned. Downstairs, the house has a small front room with a window opening onto the street. This held a number of empty wardrobes and one containing about 40 store-boxes of pinned insects. The passage way opens out into a large back room which had been used as a kitchen but was without a stove or running water. At the very back there is a lavatory and shower, neither was functional and neither was connected to mains water. The large room has side access and underneath this room at the back there is a cellar. On the outside of the first room there is a narrow, rickety staircase leading upstairs to a front room with a window at the back and an alcove at the front which probably had a blocked window. The main part of the insect collection was housed there in store boxes kept in wardrobes and in nine cabinets. All told there were about 150 storeboxes of insects and about 100 cabinet drawers, at least half of which held insects. My guesstimate was that there were 31,300 insects, mainly beetles.

When I had seen everything I returned to Murphy's office where I met him for the first time, and he told me what he knew about Fricke. Apparently he had been married until the early 1960s, then divorced, and subsequently lived alone. He had been in constant dispute with his neighbours and kept an axe at the side door, and an axe and a loaded pistol at the front door. He also had a very large jungle knife that Murphy showed me saying not to handle it as it was razor sharp. There were also explosives in the house and it was possible that there was some kind of device in the cellar. Fricke had told Murphy some time prior to his death that there was a bomb there. Apparently he was determined to defend himself and the collection to the last. Fricke had been about 20 stone and bed-ridden for the last 18 months of his life. He lived solely on large tins of cottage pie which he ate cold (there were about 20 in the house when he died) as there was no functional oven. He was periodically visited by the Salvation Army, the only people he would let into the house.

Murphy said that after Fricke died he had called in the police to clear the house of weapons and explosives. The police tried to entice one of their sniffer dogs to go into the basement but it refused as did its handler and no-one else volunteered! Then a rubbish removal firm was called in to clear the house which produced 7 dump trucks full of garbage at a cost of $2500. When all of the old newspapers were cleared the collection emerged. Fricke had left all of his estate to the RSPCA except for the house which was left to the Aboriginal community.

After I had seen the collection I phoned Mark Hanlon and then met him at the house and after we had both looked at it Mark decided to make an offer. After I had returned to Adelaide, Mark phoned me to say that he had offered $8500 for the entire collection, the offer was accepted and he had removed the collection into storage.

The collection is made up of the H.W.Brown beetle collection, all of the Fricke collection and several other notable collections. It contains some wonderful specimens, many from areas now de-vegetated. Its general condition is excellent, there was little *Anthrenus* damage and I only saw one store box that had fungus. I think Mark's acquisition of the collection was the best possible outcome as it will now be accessible to serious researchers.

Shelley BARKER

The aphid conference provided an opportunity for Dinah Hales to catch up with her former student Alex Wilson, now a post-doc at University of California – Davis.

CHAEC members visit the Macleay Insect collection: L to R Debbie Kent (FCNI), John Jennings (WINC), Keith Houston (ABRS), Max Moulds (AM), Murray Fletcher (ASCU), Ross Rickard (AQIS), Margaret Humphrey (MAMU), Rob Floyd (ANIC), Owen Seaman (TDPIF), Mali Malipatil (VAIC) and Dick Bashford (TFC).

REGIONAL NEWS

AUSTRALIAN CAPITAL TERRITORY

CSIRO Entomology

The Division has just engaged in a substantial restructure of its organization, the first since programs were introduced in 1981. Instead of five research programs and about 40 research projects, we now have no programs and only 18 projects. Three of the Program Leaders have become Strategy Directors: **James Ridsdill-Smith** for Agribusiness, **Mark Lonsdale** for Environment and **John Oakeshott** for Manufacturing. Their new role is to help set and articulate strategic direction and to provide leadership in customer relationships and research planning. As part of the changes sweeping through CSIRO because of the new CEO, **Geoff Garrett**, we are busy looking for ways to reverse the trend of the last decade and actually grow by 50% over the next 5 years. This is certainly going to keep the Strategy Group busy! Below them, there is a group of 4 additional members of the Entomology Executive: **Jane Wright** as Head of the Stored Grain Research Laboratory, **Peter East** as Manager of a new joint venture project, **John La Salle** as Head of the ANIC and **Rob Floyd** as Portfolio Manager for Biosecurity and Natural Resources. The new projects and Project Co-ordinators are:

Pest Management - Field Crops: **Owain Edwards**
Pest Management – Horticulture: **Paul DeBarro**
Pest Management – Cotton: **Geoff Baker**
Biology of Stored Products Pests: **Bruce Halliday**
Engineering for Grain Storage: **Jan Viljoen**
Chemical Control Strategies for Grain Storage: **Colin Waterford**
Forest Entomology: **Rob Floyd**
Conservation and Sustainability: **Geoff Clarke**
Biodiversity and Informatics: **David Yeates**
Applied Systematics: **Rolf Oberprieler**
Tropical Weeds: **Mic Julien**
Temperate Weeds: **Andy Sheppard**
Risk Analysis and Biosecurity: **Mark Lonsdale**
Crop Protection Genes: **Ray Akhurst**
Natural Products: **Stephen Trowell**
Bioprocessing and Enzymology: **Robyn Russell**
Chemical Insecticide Discovery: **Peter East**
Termites: **Michael Lenz**

Katarina Mikac has received the Bulk Handling Companies of Australia studentship to pursue her PhD studies with the CSIRO Stored Grain Research Laboratory and the University of Canberra. Katarina will study psocid pests of stored grain.

Australian National Insect Collection

There have seen several major staffing and structural changes in the last year. These have been due to recent new appointments, changes in CSIRO's overall strategy, and the tragic passing of **Ebbe Nielsen**, who was Director of the ANIC for many years and provided invaluable enthusiasm and vision.

On the positive side, CSIRO has appointed three new scientists to work in the ANIC: **Adam Slipinski** (Coleoptera); **David Yeates** (Diptera), **John La Salle** (Hymenoptera). These will increase our profile both nationally and internationally. We have also just appointed two new research support staff, **Joanna Hamilton** whose primary work area is Diptera and **Nicole Squires** in Hymenoptera. We also have several new postdocs and PhD students in the ANIC. Our postdocs include **Chris Lambkin** (Systematics of Therevidae: Diptera); **David Morris** (thrips/*Acacia* interactions); **Diana Percy** (psyllid behaviour and ecology). PhD students are **Pat Bouchard** (Systematics and Biogeography of Tenebrionida: Coleoptera) and **Chris Palmer** (Mecoptera Systematics and Biology). This influx of people has provided the ANIC with a burst of energy and activity.

CSIRO Entomology restructuring has resulted in a change in ANIC internal structure. We have changed from having several taxon based projects, to having two theme based projects: Biodiversity and Informatics and Applied Systematics. These projects are designed to enhance our research delivery to the ANIC's external clients, particularly in other areas of CSIRO and other organizations within Australia. The move to a smaller number of projects decreases time spent on administration, and frees scientist time for research activities. **John La Salle** has accepted the appointment as Head of the ANIC.

Weeds-related news

The new CRC for Australian Weed Management has identified four project areas for which the coordination and application of a scientific approach across all states and territories can improve the science and effectiveness of weed biological control practise. 1/ Choice of biocontrol agents: Reliable selection of highly effective agents is one of the few remaining areas in biocontrol where the relevance of a scientific approach receives significant debate. However only one in four released agents causes significant target impact. Can a general conceptual framework for selecting agents be developed? Demographic, genetic and spatial processes need to simultaneously dealt with

to make biologically realistic predictions. Effective agent choice guidelines may vary with existing management strategies, ecosystem invaded and the biology, spatial distribution, genetic makeup or relatedness of targets. Work will consider retrospective studies, quantitative analysis of field surveys of targets and agents, modelling target/ agent life history interactions, insecticide check experiments, and improved lab studies for predicting field effectiveness. 2/ Release and establishment of biocontrol agents: Effective releasing of biological control agents ranges from the choice of the material to be released, through the sequence agents are released to the manner (release size, number, season, condition, repetition etc.) in which they are released. Optimal release strategies can be gained from including an experimental or adaptive management approach to conducting releases in parallel with demographic, genetic and spatial modelling. Past work in the first CRC has shown that a) carefully selecting the order of release for a suite of agents can significantly improve long term effectiveness, b) careful selection of the agent genetic material for release can maximise population growth rates or ensure the most damaging genotypes are released, c) post release population growth rates may vary with release size, d) releasing agents at a particular time, ± cage or ± fertiliser can increase success, and e) release protocols need to be built on understanding factors limiting establishment and spread, identifying a release size and number in line with likely establishment success. Host specificity of biocontrol agents: Testing the host-range of biocontrol agents is a time and resource demanding component of any biocontrol program. Modern studies on plant phylogeny and molecular techniques have led to significant progress since Wapshere (1974) developed his benchmark protocol for selecting test lists. Meta-analyses of past testing can show whether the inclusion of more distantly related plant groups changes the risk assessment capacity allowing movement away from including test plants unrelated to the target. Parallel molecular phylogenies of agents and hosts will also allow better prediction of the likelihood of future host shifts. Significant advances also need to be made to test laboratory host range by exploring field host range and risks of likely off-target impacts. Evaluating biocontrol agents: Evaluation is usually a standard part of external contracts on biological control, but methods and depths of such studies differ. The first CRC made significant contributions to biocontrol evaluation through the linking of ecological modelling to economic evaluation and these will continue. For information contact: Andy.Sheppard@csiro.au

Forest Entomology

Rob Floyd has accepted a new role within CSIRO Entomology. This will involve him coordinating a broad range of projects involving multiple projects within CSIRO Entomology and/or multiple collaborative institutions. In addition, he remains Project Leader of Forest Entomology.

In September, **Martin Steinbauer** returned from a 6-week Visiting Scientist fellowship, funded by the Australian Academy of Science, to the Canadian Forest Service laboratory in Victoria, B.C. There he worked with **Allan Carroll** on host selection by the Phantom hemlock looper and Western hemlock looper. In addition, Martin met **"J.P." LaFontaine** (Phero Tech Inc., Delta, B.C.) to discuss collaboration on his sex pheromone project for Autumn gum moth (as well as play an unscheduled round of golf, badly in MJS's case). Allan will come to Canberra & Hobart in February to April inc. 2002 as a Visiting Scientist funded by the CRC for Sustainable Production Forestry. Martin and Allan will study host selection by Autumn gum moth. Martin also gave a seminar to the 11th International Symposium on Insect-Plant Relationships (SIP11) held in Cöpenhagen, Denmark, in August. During late September, **Rex Sutherland**, **John Dowse** (back from 'retirement', because technical assistance is in such short supply) and Martin planted another 1042 eucalypts which will be followed for the next 2 summers/autumns to record the numbers of eggs laid on them by Autumn gum moth. In October, Martin was pleased to receive an advance copy of the Thematic Issue on Insect-Eucalypt Interactions published by *Austral Ecology*. All good insect-plant ecologists should get a copy (i.e. Vol 26, Issue 5, pp. 445-570). Martin looks forward to Tasmanian colleagues organising the next Symposium in 2003.

Australian National University
School of Botany & Zoology

Sophia Dimitriadis, PhD student with **Paul Cooper** and **Peter Cranston**, is heading off for the wilds of Cooper Creek on a month-long collection trip as part of ARIDFLO program. **Trudi Wharton**, PhD student with CSIRO Entomology & the CRC for Sustainable Production Forestry, recently return from Rennes, France where she was able to soak up the intellectual atmosphere of the Internation Aphid Symposium. She presented a poster on her work on the solitary aphid, *Essigella californica*, that lives on pine trees. **Chris Palmer** is still defrosting after spending the winter

chasing wingless scorpionflies in the mountains of Tasmania. **John Trueman** and Paul Cooper are organising the Entomology course next year along with CSIRO Entomology. Paul is also organising an Arthropod Behaviour and Physiology (3rd year) course next year.

Martin STEINBAUER

NEW SOUTH WALES

The 32nd AGM and Conference was held at the Manly Pacific Hotel from 23-27 October. Despite the problems Ansett collapse, (approximately 30 indicated their inability to come) there were still 110 participants and 57 oral presentations. **Darrell Kemp** from James Cook University, the Phil Carne prize recipient, gave an exemplary presentation on life history effects on sexual selection: an investigation with butterfly territoriality. As usual, the standard of postgraduate student presentation was very high, with **Luke Rapley** from CRC in Sustainable Forest Production, Tasmania awarded the prize for the best oral presentation and **Sarina Pearce** from University of Queensland awarded the prize for the best poster presentation. There were 18 drawings and 12 photographs submitted, with the prize winners in the illustration competition 1st **Janine Gorton**, 2nd **Monica Biondo** and 3rd **Cherie Hart**, all from University of Newcastle. The photographic competition went to 2 University of Adelaide students, 1st **Nicholas Stevens** and 2nd **Claire Stephens** (apparently care of Andy Austin's new digital camera).

Entomological Society of NSW

The Society has been active over the past few months, organising a postgraduate workshop at the University of Western Sydney on 18th August, with 10 presenters from 4 institutions. At the September meeting, the speaker was **Robert Ryan**, who spoke on Gesouus fumigants-limited choice of molecules. For its November meeting (3 – 4), Sydney members will visit Orange for a weekend tour of the Insect Collection at NSW Agriculture's Institute as well as visiting the Botanic Gardens and organic production facilities.

University of Western Sydney

Andrew Beattie and **Zonghmin Liu** attended the 4th Asia-Pacific Entomology Conference in Malaysia in mid August, after visiting China, Vietnam and Thailand to inspect field trial sites for their oil spray work. **Melissa Bell**, an honours student is getting inundated with local interest in her studies on native blue-banded bees *Amegilla* sp. She is receiving assistance from **Anne** and **Les Dollin**.

Robert SPOONER-HART

School of Physics, The University of New South Wales at the Australian Defence Force Academy, Canberra

The School's two Insect Monitoring Radars, at Bourke, NSW and Thargomindah, Qld, operated through much of 2000, providing a fine dataset for **Haikou Wang** to work up for his PhD thesis. The Thargomindah IMR has been temporarily turned off, but that at Bourke continues and has now been operating for three years. See http://www.imr.ph.adfa.edu.au/ for the latest observations! **Alistair Drake** and Haikou travelled to Bourke in December 2000, and to both Bourke and Thargomindah in February 2001, to service the radars.

Haikou and **Ian Harman** have been busy on their data analyses and thesis drafting. Thanks to their efforts, we now have good quality data on target wingbeat frequencies in addition to speeds, directions, orientations, and sizes. Haikou continues to spend some time at the Australian Plague Locust Commission headquarters in Kingston, ACT, where **Meaghan Macfarlane** helped with an initial analysis of the 2000 Thargomindah dataset during the winter of 2001. **Tim Dean** has been exploring some more technical aspects of the IMR data. How steady are the migrants' orientations? Does the "radar shape" of a target (i.e. the length/width ratio of an echo) provide useful information about its identity? He has taken a particular interest in the old (but apparently not well researched) question of how fast flying insects actually move, and has carried out a rather thorough literature survey looking for observations that he can compare with the speed estimates produced, continually and in rather generous quantities, by the IMRs. Tim's enrolment was upgraded from MSc to PhD early in the year, and he is now constructing a trailer-mounted mobile IMR with which he will obtain the final datasets needed for his thesis.

In August, Alistair joined APLC's **David Hunter** and **Ted Deveson** on a study tour of pest-forecasting organisations and research laboratories in China. Alistair was able to see the Chinese Academy of Agricultural Science's entomological radar in operation, observing *Helicoverpa armigera* migration near Beijing. Principal host for the tour was **Bao-Ping Zhai**, who has spent several months in Australia in past years (at CSIRO Entomology in Canberra and more recently at UQ).

Bao-ping is now a Professor at Nanjing Agricultural University.

NSW Agriculture,
Orange Agricultural Institute

Murray Fletcher and **Peter Gillespie** attended a meeting of the Council of Heads of Australian Entomological Collections at the Macleay Museum, University of Sydney in September (see separate report), with Peter continuing on to the Society's conference at Manly. **Graham Thwaite** also attended the conference and presented a summary of progress in his development of integrated pest and disease management for Australian prunes. The paper was a joint effort between Graham, **Danuta Knihinicki, Anne Hately** and **Marion Eslick**, all of OAI. Graham also presented a similar paper to the Australian Prune Growers Association in Griffith. A paper on elephant weevil borer in blueberries was presented by **Alan Clift** (Univ. of Sydney) and jointly authored with **John Macdonald** and others.

Keys to the genera of the Auchenorrhyncha families Tropiduchidae, Eurybrachyidae, Cicadellidae: Ledrinae, Machaerotidae and Cercopidae have been added to **Murray Fletcher**'s web-based keys to the Auchenorrhyncha of Australia which were expanded earlier this year, in collaboration with **Marie-Claude Larivière**, to include the New Zealand fauna. Murray has been invited to become the new overseas representative on the New Zealand Arthropod Collection (NZAC), Invertebrate Systematics Advisory Group following the retirment of **John Lawrence** who filled this role previously. **Danuta Knihinicki** continues her work on the plant feeding mites of Australia and has been promoted to Senior Technical Officer in recognition of her continuing contribution at a national level in this field.

Recent visitors to Orange have included **Jim Taylor** (DNRE, Victoria) to see **Murray Fletcher** to discuss the value of the Agricultural Scientific Collections Trust Act and whether similar legislation in Victoria would be of benefit to the Knoxfield collections. **Richard Bull** and **Sue Cross**, Aventis Crop Sciences P/L, and **Keith Jorgensen**, quarantine and horticulture consultant with Horticulture Australia, visited **John Macdonald** in recent months to discuss fruit fly management and market access of fresh horticultural produce.

Murray FLETCHER

CERIT, UNSW

Our second 2001 Symposium *'Managing Food Industry Pests in Australia - 2001'* was held at UNSW on 27 September, and deemed a success by those able to bypass 'terrorist attacks' and 'Ansett collapse' problems. While the attendance of 100 people was pleasing, one wonders what might have been if both of these events had not happened!! Attendees were from: Pest management, Local council, Food industry and Food production companies. The symposium was the first review indicating the extent and mechanisms of the connection between insects and microorganisms in food. CERIT coordinates these Industry Briefing Symposiums to support itself financially and to synergise the development of better pest management. We welcome input for new topics. <CERIT@unsw.edu.au>

Chris Orton has again been busy attending a variety of things. In July he went to Dubbo for the AEPMA conference, and also attended the FMC meeting on Fire Ants in Sydney. During August in Sydney the Globe Pest Expo was on. In September Chris attended a UNSW Food Science workshop and gave a lecture to students about 'insect adulteration in food'. He also attended the launch of PCT's 'EXTERRA termite baiting system'.

The 'sciences' at UNSW have been reorganized resulting in a new super "Faculty of Science". The new faculty facilitates new alliances and provides revision of course structure and reduction of duplication in teaching. CERIT's academic activities are now in the new Science faculty, however our commercial activities remain in Unisearch – Expert Opinion Services.

Sarah Lunau is about to commence parental leave, and we wish her all the best for the times ahead. In her absence **Patrick O'Rourke**, **Merilyn Baker** and **Julie-ann Short** will have little spare time!!

Recent visitors to CERIT have included: the RACI to inspect CERIT facilities; Schering-Plough Animal Health staff, SC Johnson staff and **Brian Chung** (Botanical Resources Australia) to discuss commercial research projects, also **Ahmed Etman** (Entomology Professor - Uni of Cairo) a nostalgic visit for a former UNSW student & to discuss possible collaboration.

Julie-ann SHORT

Regional NSW

Robin Gunning and her team at NSW Agriculture's Tamworth Centre for Crop Improvement have recently been forced to move pesticide laboratory and without any funds or any assistance! Our carpentry skills have certainly been sharpened up! **Emma Cottage** of the University of New England

is busy writing up her thesis. When the thesis is submitted, Emma will take up a Cotton Research and Development Corporation post doctoral position working on aphid resistance mechanisms, with NSW Agriculture at Tamworth.

In late September, Robin Gunning and Emma Cottage (from Tamworth), **Ho Dang** and **Jonathon Holloway** (both from Narrabri), attended the Resistance 2001 conference at Rothamsted in the UK. The meeting was excellent and we met up with **Louise Rossiter** (formerly of Sydney University), who is currently doing a post-doc in the UK. After the meeting, Emma and Robin spent a few days in Italy, mostly eating!

Robin GUNNING

NORTHERN TERRITORY

DPIF Entomology Branch

The "build-up" has hit the Territory and we are receiving higher temperatures and humidity. The season is ideal for prowling male mouse spiders, and the singing cicadas are in fine tune...but for the rest of us, the weather is unbearable.

The Branch welcomes **Brian Thistleton**, who started in mid September to replace **Graham Young**. Brian originally from England, has had extensive experience in tropical entomology especially in Papua New Guinea, Fiji and more recently in the Solomon Islands. Brian will be the senior entomologist working on *Mastotermes* research. **Michael Neal** and **Heather Wallace** are pleased to meet their new "boss" and have briefed him on the *Mastotermes* trials involving residue testing, wood consumption trials and a trial in an agroforestry plot. Mike and Heather have also been involved with a fruit fly bait trial with **Haidee Brown** in a carambola orchard. In another area of her work, Haidee also prepared a presentation for the diagnostic workshop on "Exotic Parasites of European Honey Bee, *Apis mellifera*" held in Canberra. Unfortunately, Haidee was unable to attend the workshop, and the presentation was presented by **Ian Peebles**.

Stuart Smith has been a busy bee as usual and has managed to fly to Cairns twice, once in late July for a meeting on "Exotic Fruit Flies in Torres Strait" and again in early September for a NAQS scientific advisory panel. In late August, Stuart entertained a group of visitors from an agricultural agency in Indonesia. The visitors were impressed with Stuart's ability as a tour guide as they stood in a packing shed in Humpty Doo and witnessed a bush fire blow up a tractor and a couple of large round bales of hay. After farewelling the Indonesians, Stuart rushed back to take charge of an exotic fruit fly detection in Darwin, which did not lead to an outbreak. That was good news for Stuart and he was able to take some hard-earned leave and went to Bali to soak up hotel air-conditioning...and search the hotel gardens for insects.

Stuart and **Deanna Chin** have been working on the re-vamp of the Branch's web pages which will be available from late November. Deanna has been answering various enquiries on mango trees including stressed trees which were struck by lightning (last wet season) and then being prone to longicorn damage. Other build up problems received in mass numbers were queries on mouse spider sightings and control of ants in the household, in particular, *Monomorium destructor* which has been building nests in power points.

Graham Brown has been occupied with processing quarantine samples and has made some interesting identifications including the detection of small nests of crazy ants *Anoplepis gracilis* in bundles of timber and the giant African snail, *Achatina fulica* in a container from Timor. Graham has also been involved with the identification and control of an introduced termite found in a large canoe at the NT Museum. **Lanni Zhang** has persisted with her slide preparations on diaspids and coccids, mainly from quarantine samples, and lately has been revising our brevipalpid mite identifications.

All members of the Branch, the director of Resource Protection, the director of Horticulture, pesticide co-ordinator and senior inspector of Interstate Quarantine joined **Megan Connolly** (with several Katherine DPIF staff) at the Katherine Research Station for the Annual Entomology Branch Conference held in September. Megan has recently made an interesting and exciting discovery in Katherine. She noticed cane toads at the base of a lamp post one night feeding on cynids (lavendar bugs). The next morning she discovered that the cane toads were dead and it was suspected that the bugs were toxic to the toads. Megan is now much in demand for radio interviews.

Bruce Dilley has joined the Branch temporarily and has been working on the exotic fruit fly surveillance program and helping with general administration duties. Bruce is being re-trained and thinks that we are a bunch of "softies" compared to the people he used to work with in his old job in Correctional Services.

Medical Entomology Branch

All staff were on deck with extensive helicopter surveys and salt marsh control operations in the coastal swamps around Darwin each new moon during August, September and October. **Jane Carter** and **Gwenda Hayes** organised and coordinated the operations and the results have been very good, with no pest numbers of saltmarsh mosquitoes in the monitoring traps and no complaints from residential areas.

All staff attended the Communicable Disease workshop in September with a hypothetical panel exercise of a NT wide outbreak of Murray Valley encephalitis. Procedures involved medical entomology, but emphasised the wide coordination of many health and government areas required.

Peter Whelan has been involved with continuing efforts to drain Ilparpa swamp in Alice Springs. Territory Health, Local Council and Lands staff all coordinated to carry out publicity and mosquito fogging operations around the swamp during a large Aboriginal theme festival. No pest problems or mosquito borne disease cases were experienced by the festival crowds but the regular monitoring shows a gradual rise in *Culex annulirostris*, increasing the risks for MVE in the coming summer. There are plans to burn the reeds in the swamp and create storage capacity of effluent in summer to reduce the breeding area of mosquitoes.

Various staff have been involved in the annual mosquito engineering maintenance and rectification of drains around Darwin. A large area of Leanyer swamp have been shallowly filled to above tide level which will reduce aerial control operations.

Peter and **Gwenda Hayes** have just completed two extensive base line reports for a proposed gas plant and new magnesium mine. These reports outlined potential mosquito and biting midge problems and suggested remediation and avoidance strategies to prevent pest and disease problems. Other staff including **Gisela Lamche**, **Nina Kurucz**, **Brett Brogan** and **Alan Warchot** are busy preparing other base line reports on other mine developments and town monitoring operations.

A new professional position to deal with increasing exotic vector detection has been approved and the selection of an applicant will be completed in October. This will strengthen surveillance operations with Quarantine authorities to prevent exotic mosquitoes and disease.

Northern Australia Quarantine Strategy

After attending a meeting of the national arbovirus monitoring program in August, **Glenn Bellis** travelled to East Timor for a third attempt at repelling giant African snails. More recently he helped **Colin Wilson** and **Leonie Wittenburg** attempt to control crazy ants from selected sites in eastern Arnhemland.

Martin SHIVAS

QUEENSLAND – NORTH

JCU

Darrell Kemps PhD was accepted, and he was also rewarded with the Society's Phil Carne Prize. He presented an excellent paper at the AES conference on 'Life history effects on sexual selection: an investigation with butterfly territoriality'. Darrell is now off to Arizona State for a one year post doc, then to UQ for an ARC post doc with **Meron Zalucki**.

QDPI Entomology – Mareeba

Bruno Pinese and **Rob Bauer** flew to Lizard Island for the day to search for crazy ants. No colonies were found. **Paul Zabrowski** just returned from an overseas trip, including Colombia, Germany and USA. His work in Germany included presenting a photographic workshop, whilst the rest of the trip was spent taking photos for his growing library. Paul will also be starting new mossie work next week.

QHI – Cairns

Seemi Khan and **John Cavallaro** from Queensland Horticultural Institute, Cairns, attended the Australasian Postharvest Conference 2001 in Adelaide, 22 – 28 September. Seemi presented a paper co-authored with colleague **Bob Corcoran** entitled "Hot air disinfestation of tropical fruit against fruit flies is enhanced by low oxygen conditioning". John presented a paper with **Rod Jordan** (QHI, Gatton) entitled "Factors affecting the development of injuries in heat treated fruit".

NAQS – Mareeba

In late August, while on a routine survey in the Torres Strait, **Judy Grimshaw** and **Barbara Waterhouse** detected the red banded mango caterpillar (*Deanolis sublimbalis*) in early mango fruits on Hammond Island (next door to Thursday Island). This prompted a visit to the Lockhart River community in early October to check the mangoes there, but no caterpillars were seen. Barbara is still busy doing 'post Timur' surveillance of Department of Defence sites in north Queensland as well as detecting yet more exotic weeds in the country. This time it's Koster's Curse (*Clidemia hirta*), found at an old palm nursery near Julatten.

A change of leadership for NAQS – Scientific Plant Programme. We farewell **Jan Cristofani** who is heading back to Canberra, and welcome former NSW Quarantine Entomologist **James Walker**. Lots of nice roaches up this way, James.

Paul De Barro (CSIRO Brisbane) visited the office to discuss research requirements for red banded mango caterpillar with Judy and **Bruno Pinese**.

Kylie Anderson per attended the AES Annual Conference at Manly (very impressive venue!), and presented a paper "Quarantine plant health survey of the northern peninsula area and problems with target identification". Many contacts were established, and the chance to visit the Australian Museum snapped up. Kylie also attended an exotic bee mite workshop with **Dennis Anderson** at CSIRO Entomology in Canberra. This was an excellent opportunity to learn more about exotic bees and their mites, and how the States and Territories are monitoring such things. Dennis also ran through current research being undertaken at CSIRO, and participants had a chance to examine *Varroa* species and *Tropilaelops* mites, and perform a bee tracheotomy to look for *Acaropsis*.

Rachel McFadyen dropped by for a quick chat during a break at the Bio-Industry Research Providers Workshop. The pow-wow is being held as part of a Labour election promise to develop a Biotechnology laboratory in Mareeba.

Kylie ANDERSON

QUEENSLAND - SOUTH

Entomology still alive and well at UQ

In common with most traditional biological science disciplines (read not molecular) at Australian universities Entomology at the University of Queensland has suffered some set backs in the last few years. The usual non-replacement of staff who have left due to restructuring has occurred (**Gordon Gordh, David Yeates** and most recently **Greg Daniels**). All that is water under the bridge and there is no point wallowing in the past.

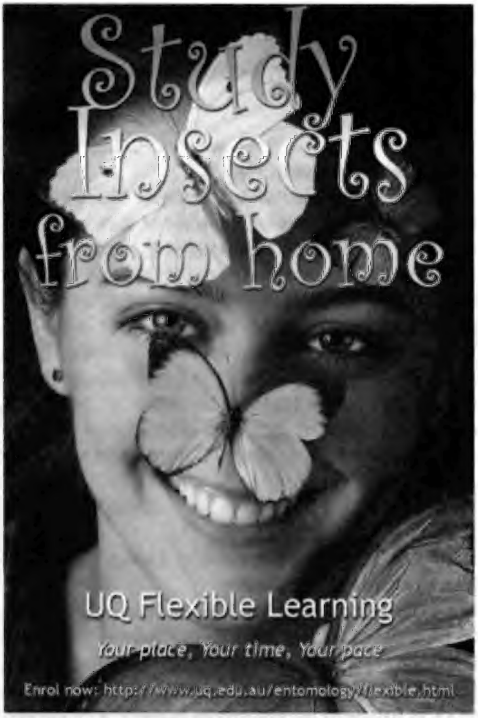
On the positive side Entomology is now part of the larger department of Zoology and Entomology in the School of Life Sciences. This means access to a wider number of bright keen undergraduate students who are interested in biology. This may make up for the loss in the Agricultural based Sciences. Apparently our applied faculty believes studying insects is not essential. The ability to access Entomology on the web continues to attract attention. The number of students taking Entomology at the undergraduate level in remote mode continues to grow (about 40 this semester) as does the number taking the Graduate Certificate, Diploma and Masters Program in Entomology through the University of Queensland. For further information see: http://www.uq.edu.au/entomology/flexible.html.

The move of Entomology into the Goddard Building has taken us back to the Centre of Campus activities and to the origins of Entomology at UQ. The discipline was based in Goddard many years ago. These digs are a vast improvement on the old Hartley Teakle building and we now have access to more facilities. Importantly the UQIC is now housed in one large room in Goddard and we plan to maintain it at its present state of curation and ensure that it does not suffer neglect in maintenance. We are considering several ideas that will enable us to employ at least a part-time curator in the near future.

Postgraduate student numbers remain high. We recently attracted 3 Masters students from the UK: **Ian Hatherly, Chris Sanders** and **Sarah Andrews**. They undertook research projects as part of their Masters in Applied Entomology degrees from Imperial College at Silwood Park with the aid of able supervision from **Dr Paul Cunningham** (Research Fellow on CRDC project on Learning in *Heliothis* oviposition behaviour) and **Dr Mike Furlong** (IPM Scientist on the ACIAR Brassica Project with China). We are becoming increasingly involved in research projects associated with the CRC for Tropical Plant Protection. **Dr K. Dhileepan** has been appointed as a Senior Research Officer through the CRC and is located in Entomology. **Dhileepan** and his PhD student, **Andrew Ridley**, work on insect vectors of Fiji Disease in sugarcane. Honours student, **Michelle Larsen** is working with **Gimme Walter** to study the relationship between phytoplasma diseases and cicadellid vectors. Congratulations to **Ma Deling** (PhD), **Ekhlass Jarjees** (PhD) & **Hugh Brier** (Masters) who recently completed their degrees.

Visitors to the Department include four scientists from the Democratic Peoples Republic of Korea, **Jo Sang Su** (Academy of Agricultural Sciences), **An Song Su** (Academy of Agricultural Sciences), **So Yong Il** (Central vegetable Research Institute) and **Ryu Chol Man** (Central vegetable Research Institute). They are undertaking 8 weeks intensive training in Integrated Pest Management sponsored by ACIAR.

We have taken advantage of university investment in its priority areas such as molecular biology (with the Centre for Insect Diagnostics being headed by **David Merritt**) and ecology (with The Ecology Centre). The Entomology Program is an active


Study Insects from home
UQ Flexible Learning
Your place, Your time, Your pace
Enrol now: http://www.uq.edu.au/entomology/flexible.html

New Millenium approach to attracting students to Science: is UQ considering pheromones?

participant in The Ecology Centre, which is a new multidisciplinary research centre in pure and applied ecology with an emphasis on spatial and quantitative ecology. The centre provides two new opportunities for our already robust insect ecology postgraduate teaching and research program: (a) enhanced access to quantitative and spatial analysis for applied insect ecology projects and (b) use of insects as study organisms in theoretical ecology projects.

We look forward to an old graduate of the Entomology Department returning to take over the reins of Zoology and Entomology. **Scott O'Neil** will commence as HOD on October 15, from his present position at Yale. One of our challenges is to shore up systematics not only at UQ but in Queensland generally. The decline in support for collections is being felt at the Queensland Museum, QDPI as well as UQIC. We will be taking positive steps to collaborate with these institutions and others undertaking collection based research (e.g. Griffith University) so that together we can halt the slide in support for systematics.

Meron ZALUCKI

SOUTH QUEENSLAND

Geoff Waite attended the Conference of the Australasian Society of Plant Pathologists in Cairns in September to participate in workshops run by the Phytoplasma Group headed by **Karen Gibb** at the University of the Northern territory. This was in connection with a new collaborative project on lethal yellows in strawberries between the "Better Berries" team at Maroochy Research Station and Karen's group. Geoff's role is to try to identify the insect vector of the phytoplasma in strawberries, which has also been implicated in papaw dieback and grape vine yellows.

Geoff Waite is also busy organising the second Professional Development Workshop for the Queensland Horticulture Institute entomologists to be held in the Bunya Mountains at the end of October. Entomologists working in the separate fields of horticulture and field crops have often felt alienated and have suffered somewhat since QDPI dropped the Branch structure in favour of the Institutes. So it is pleasing that entomologists from both Institutes will be attending the workshop, with all staff looking forward to 'bonding' once again.

In August the management of Queensland Horticultural Institute made the position of entomologist on the Amenity programme to be surplus to requirements. Without warning, **John Hargreaves** was retrenched after 33 years service. He has been fortunate to find a temporary position at the Fire Ant Control Centre.

The entomology group at QDPI Toowoomba is embarking on a new three year project to further the development of farming systems-based management strategies for *Helicoverpa* in southern Queensland. The project, jointly funded by the CRDC and GRDC, builds on the work of two recently completed projects, 'IPM for Grains' and 'Regional Management of *Helicoverpa* on the Darling Downs'. The project is timely with a groundswell of awareness and active experimentation with IPM by growers on the Downs and beyond. **David Murray**, **Melina Miles**, **Julie Ferguson**, **Richard Lloyd**, **Jamie Hopkinson** and **Sue McLean** are all involved in the research, development and extension associated with the project.

Brad SCHOLZ

University of Queensland, Dept of Zoology & Entomology

The UQ Mite lab is undergoing some changes in personnel. **Gen Takaku** has gone back to Hokkaido to finish working on cane beetle associated mites in between lectures. **Irene Vanninen** is finishing up her last month of a highly successful year of

research on predators of western flower thrips and is preparing to return to Finland. However, there is one new addition to the lab - Associate Professor **Qinghai Fan** has arrived from Fujian Agricultural University for a year of study leave devoted to the systematics of the Raphignathoidea (including biocontrol agents in the Stigmaeidae and Camerobiidae) and more hands-on biological control research. Termites (**Brenton Peters**), parasitic mites (**Matthew Shaw**), canopy biodiversity (**Fred Beaulieu**), spider distributions (**Elisha Ladhams**), and scarab systematics (**Karen Bell**) continue to fall victim to the attentions of numerous PhD students, while **Michael Rix** is pushing forward the frontier of schizomid biology and **Owen Seeman** anxiously awaits his referee's comments on passalid mites as a model for all biodiversity. **Jenny Beard** and **Dave Walter** continue to slog through the swamp of spider mite systematics, while the latter is also gearing up to begin a new ARC funded project (with **H Proctor**, Griffith University) on the evolution of haplodiploidy, and is wondering how much he will need to add to his lectures in Arthropods & Human Health on the mechanical transmission of anthrax by insects.

Dave WALTER

Mosquito Control Laboratory, Queensland Institute of Medical Research, Brisbane

In September **Peter Ryan** and **Scott Lyons** visited the Vector Control and Research Department, Ministry of the Environment, Singapore. They visited field sites and reviewed current dengue control activities and a GIS used to manage dengue and *Ae. aegypti* surveillance data.

Brian Kay and Peter Ryan will be attending the WHO Health Forum "Environmental Dimensions and Policies for Dengue Prevention and Control" in Singapore, 22-25 October, 2001. The forum will include discussions on social mobilisation and communication, and operational research on monitoring and surveillance of dengue and its vectors. The forum aims to determine what works, what does not and what questions still need to be answered.

Sunita Quick (USA) has completed her 3 month study tour in the Mosquito Control Laboratory working with **Leon Hugo** (PhD student) on age grading methods for *Oc. vigilax*. Sunita will accompany **Brian Kay** and **Tessa Knox** on a field trip to Vietnam in November. Sunita plans to start her PhD studies in 2002 at QIMR. After **Jason Jeffery** submits his honours thesis entitled "The relative importance of *Coquillettidia linealis* as a vector of Ross River and Barmah Forest viruses on the Moreton Bay Islands" in November, he will be off to Lake Tahoe, California, for a bit of non-entomology R&R.

Peter RYAN

Army Malaria Institute

In mid August, Lieutenant Colonel **Nguyen Van Dung**, from the Socialist Republic of Vietnam Army, returned to Vietnam following a 6 month stay at AMI. **Bob Cooper** spent 2 weeks during September-October in Hanoi, Vietnam, where he participated in an ongoing project with the Vietnamese Army. Whilst on route to Hanoi, Bob also visited the Department of Entomology, Armed Forces Research Institute for Medical Sciences, Bangkok, Thailand, and had discussions with US Army entomologists, **Russ Coleman** and **James Jones**.

Steve FRANCES

CSIRO Entomology – Long Pocket Laboratories, Brisbane

Marc Coombs and **Veronica Brancatini** have been making regular trips to Bundaberg and **Paul De Barro** to Emerald as part of an ongoing project on the silverleaf whitefly, *Bemisia tabaci*. Current work is focusing on improving control of whiteflies in horticultural crops. Marc Coombs and **Richard Milner** (CSIRO Canberra) recently initiated a field trial at the 'Trawalla' pecan orchard near Moree NSW to assess the efficacy of *Metarhizium* and *Beauveria* strains for the control of the cerambycid borer *Agrianome spinicollis*. A preliminary assessment will be made in early November. Andrew White attended the recent Australian Entomological Society Conference and AGM in Sydney presenting a joint paper with Marc Coombs on the biology, pests status and within field distribution of *A. spinicollis* in pecans.

Richard Vickers and **Andrew White** have recently completed trials to evaluate mating disruption as a means of controlling the clearwing borer *Carmenta chrysophanes* in persimmons. The trials proved very successful and pheromone dispensers are now commercially available, enabling 19 growers in Qld and NSW to further test the technique during 2001-02.

Decisions on funding proposals for the weeds of national significance are currently being made. The tropical weeds project of CSIRO Entomology is involved in several of these. So far we have heard that we will be starting new work on biological control, ecology and management of the thorny

woody invasive legume *Parkinsonia aculeata*. **Mic Julien**, **Tim Heard** and **Ricardo Segura** will be involved in exploration for new natural enemies in Central America. **Rieks van Klinken**, in collaboration with state government colleagues will be studying the ecology and management of the plant in Northern Australia and evaluating the impact of current biological control agents.

New work will also commence with alligator weed. Mic Julien will work with USDA colleague, **Hugo Cordo** in Argentina to find new biological control agents in the native range of this plant that is an invasive weed in aquatic systems in Australia.

Mic Julien, Tim Heard, Rieks van Klinken, **Rob Sutherst** and **Gunter Maywald** attended planning meetings of the renewed CRC for Australian Weed Management in Sydney and Canberra. They are involved in many exciting new initiatives on biological control and management of tropical weeds.

Cathy Lockett of the Qld Dept of Natural Resources and Mines visited **Richard Chan** and Tim Heard to discuss biological control of bellyache bush. A scutellerid currently being tested in quarantine is showing a lot of potential as being the first agent to be released against this tropical weed. Cathy will be responsible for mass-rearing and distributing this insect if permission is obtained to release it.

Ricardo Segura of the CSIRO Mexican Field Station visited Venezuela to collect agents of *Hyptis suaveloens* and bellyache bush. These were successfully sent to Australia and are now getting used to their new home in quarantine. **Gio Fichera** is treating them like visiting royalty while testing them for their safety and suitability for eventual release to combat these environmentally destructive exotic shrubs.

An application has been made to release the next agent for biological control of *Mimosa pigra*. **Ryan Zonneveld** and **Arelí Mira** subjected the geometid moth, *Macaria pallidata* to host specificity testing against 70 plant species. Tim Heard prepared the proposal for release and now it's in the hands of the 21 reviewers who must unanimously agree before a permit can be issued. If acceptable, *Macaria* will be the 13th agent to be released against this seriously aggressive environmental weed. Biological control agents are now starting to seriously impact on mimosa and we hope that this new leaf feeder will tip the balance in favour of native vegetation and against mimosa.

The USDA/CSIRO Australian Biological Control Laboratory is continuing work on biological control of the paperbark tree, *Melaleuca quinquenervia* and the Old World climbing fern, *Lygodium microphyllum*. Several agents have been exported from Australia to Florida, USA for control of *M. quinquenervia* including a weevil, *Oxyops vitiosa* which is having a significant impact on the tree. For *L. microphyllum*, two pyralid moths have been shipped to quarantine facilities for final host range testing. Check out our websites for additional information:

Australian Lab - http://www.ars-grin.gov/ars/SoAtlantic/aust/- ;

Florida Lab - http://www.arsgrin.gov/ars/SoAtlantic/FtLauderdale/awcru.htm

Marc COOMBS

Griffith University, Tropical Fruit Fly Research Laboratory

Tony Clarke is currently in Bhutan on the collaborative ACIAR project between Griffith University and the Royal Government of Bhutan National Plant Protection Service on biology and control of the Chinese citrus fruit fly, *Bactrocera minax*. Work is progressing very well as we harvest trails. A combination of approaches now shows that the period in which the mandarin crop is susceptible to the fly is only six weeks in June & July, much shorter than the 3-4 months that current recommendations suggest. Control options include protein bait sprays, or a targeted once off cover spray with a systemic insecticide. Bhutan in the autumn is very green and wet, temperature very comfortable in the mid 20's.

James Fawcett has finished his special topic on "Sex & Size in the Queensland Fruit Fly" with the startling conclusion that female *Bactrocera tryoni* prefer to mate with small males. He and his supervisors, **Heather Proctor** and **Darryl Jones**, are at a loss to explain the mechanism behind this result, unless it is that because the flies are size-dimorphic, females more readily recognise small males as 'males', while large males may not fit their preconceived notion of masculinity.

Tony CLARKE

Department of Natural Resources, Alan Fletcher Research Station

Graham Donnelly joined **Warea Orapa** of National Agricultural Research Institute, Lae, PNG on a trip to New Ireland to survey the extent of Siam weed, *Chromolaena odorata* on the island and to release the chromolaena gall-fly, *Cecidochares connexa* in Siam weed infestations on the island as part of an ACIAR funded project for the biological control

of *Chromolaena*. They also visited the Rabaul area of New Britain to inspect release sites of the gall-fly and the moth *Pareuchaetes pseudoinsulata*.

Graham DONNELLY

SOUTH AUSTRALIA

Dept. Applied and Molecular Ecology, Waite Campus, Adelaide University

In August, **Andy Beattie** (Key Centre for Biodiversity & Bioresources, School of Biological Sciences, Macquarie University) presented a seminar titled "Wild solutions: how biodiversity is money in the bank" as part of the seminar series hosted by the Centre for Evolutionary Biology & Biodiversity, Adelaide University. Andy also spent some time discussing various projects postgraduate students and staff.

In September, **Gary Taylor** and **Mike Keller** held talks with USDA delegates **Dennis Haugen** (US Forest Service, Entomologist), **Gregg DeNitto** and **John Kliejunas** (US Forest Service, Pathologists) and **Ed Podleckis** (APHIS, Regulatory Specialist) on their leg of the USDA Pest Risk Assessment Tour of Tasmania & South Australia. The Australian visit comprised a delegation of 10 people that split into 3 subgroups, each visiting 2 states. The purpose of the visit was to write a Pest Risk Assessment for insects and pathogens for the importation of *Eucalyptus* logs from Australia to the US. Included was a tour of the South-East of South Australia, coordinated by **Charlma Phillips** (Forest Health Scientist ForestrySA, Mt Gambier), to talk to forestry personnel, to view eucalypt harvesting, and to visit eucalypt plantations.

In September and October, **Gary Taylor** hosted a visit by Leverhulme Postdoctoral Fellow recipient, **Diana Percy**. Diana is at CSIRO Entomology studying sound production in the Australian Psylloidea. Intensive collecting and recording whilst in South Australia yielded sound recordings for about 20 species of local psyllids. Barely audible with the naked ear, amplification reveals a remarkable array of species-specific calls, from short staccato stridulations and frog-like croaks, to extended monotonic calls lasting several minutes. **Mike Keller** also took the opportunity to record sound production in the courtship behaviour of the parasitic wasp, *Cotesia rubecula*.

John Jennings (representing the Waite Insect and Nematode Collection – WINC) attended the Council of Heads of Australian Entomological Collections (CHAEC) meeting held at the Macleay Museum prior to the AES Conference and AGM. John is now the Treasurer, having taken over the role from **Max Moulds** who held the position since the inception of CHAEC.

Andy Austin (AES President), **John Jennings**, and postgraduate students **Sylvia Clarke**, **Marta Kasper**, and **Claire Stephens** attended the AES Conference and AGM at Manly. **Nick Stevens** and **Claire Stephens** were thrilled to receive 1st and 2nd prizes in the photographic competition.

In October, **Muhammad Iqbal** was elected and **Tom White** and **John Jennings** re-elected to the Council of the Royal Society of South Australia, Iqbal and Tom as Councillors and John as Treasurer.

Registrations for the *5th Invertebrate Biodiversity and Conservation Conference* to be held at Adelaide University, 1-4 Dec 2001 are very encouraging. Intending registrants should note that the deadline for earlybird registrations has been extended owing to the situation with the airlines. For updates and conference program, check out: http://www.waite.adelaide.edu.au/bio2001.

SARDI Entomology

After a long and illustrious career in Australia and Papua New Guinea, **Peter Thomas Bailey** has recently joined the ranks of the venerable retired. His invaluable contribution to the SARDI Entomology Unit and supervision of numerous postgraduates in the Department of Applied and Molecular Ecology will be greatly missed. Amongst many pest management achievements Peter's instrumental role in advocating and developing the use of the sterile insect technique for the eradication of Queensland and Mediterranean fruit-flies in South Australia stands large. To continue this fruit fly research **Cathy Smallridge** has joined SARDI to look at dispersal patterns of releases of sterile male Mediterranean fruit-flies in suburban Adelaide, and their ability to suppress or eradicate wild fruit-fly outbreaks. In the first three weeks of Cathy's project 3.6 million pink fluorescent sterile Medflies, supplied by **Bill Wood's** team in WA, have been released, with an expected maximum release rate of 4 million per week to happen in the coming weeks.

Sadly **Suzanne Charwart** will be leaving SARDI at the end of November. She has made a huge contribution towards developing effective management strategies for combating the snail species that threaten the Australian grain export market. Her destination is Germany in mid December and those European snails and slugs had better be on the look out.

David Andow, Professor, Department of Entomology, University of Minnesota will be visiting Australia on a McMaster Fellowship. Dr. Andow will provide high-level scientific input into the CSIRO

project on Cotton Pest Management, involving investigations of variations in the efficacy of transgenic cotton varieties expressing Bt genes, the role of refuge crops, and the impact Bt cotton may have on beneficial invertebrates. He has developed several novel approaches toward monitoring resistance in the context of adaptive management of resistance evolution in pests of Bt maize, and in-field screen and an F2 screen. In addition, Dr. Andow has used theoretical models to evaluate the potential for adaptive resistance management to respond to information about the frequency of resistance. He has also published numerous articles in the area of insect ecology.

Dr. Andow presently serves on the US National Academies of Sciences Standing Committee on Agricultural Biotechnology, Health and Environment, which has responsibility for identifying emerging scientific issues and setting priorities for activities that should be undertaken by the National Academy. He is also serving as a committee member of the National Academy Subcommittee on Environmental Impacts Associated with Commercialisation of Transgenic Crops and has served on the US Environmental Protection Agency Science Advisory Panels regarding resistance management and non-target effects of transgenic Bt crops, and on the US Department of Agriculture, Agricultural Biotechnology Research Advisory Committee (ABRAC).

He is currently scheduled to arrive in Australia in early January 2002 to hold workshops in Canberra at CSIRO, discussions with IOGTR in Canberra, a seminar at ACRI, Narrabri, NSW, and at the Waite Campus with Adelaide University and SARDI. If anyone is interested in hosting or meeting with Dr. Andow please contact:**Nancy Schellhorn**, 08-8303-9543 -schellhorn.nancy@saugov.sa.gov.au or **G. Baker** 02-6246-4406; geoff.baker@csiro.au

John JENNINGS

TASMANIA

University of Tasmania
School of Agricultural Science/CRC for Sustainable Production Forestry.

Geoff Allen, Helen Nahrung, Luke Rapley, Anthony Rice, Hilton Redgrove and **Marie Yee** all attended the AES conference in Manly presenting 5 talks and 3 posters with Luke winning the prize for best oral presentation by a student at the conference. Helen also took the opportunity to talk chrysomelids with **Chris Reid** at the Australian Museum. **Anthony Rice** detoured to Canberra to catch up with **Don Colless** and **John La Salle** at ANIC, whereas **Luke Rapley** also detoured to Canberra, though on his return, to talk with **Martin Steinbauer** and to familiarise himself with GC-EAG for future chemical ecology work on autumn gum moth. In late July **Max Whitten** in his capacity as Centre Visitor to the CRC SPF made a visit to the entomology group at the CRC. **Jamie Davies** (PhD student on gorse biocontrol) and **John Ireson** (TIAR, Newtown) recently left on a one week trip to New Zealand to talk gorse biontrol with Landcare and other researchers. Finally the proceedings of the Flystrike and Lice (FLICS) workshop held in June at Launceston have just been compiled and may be ordered (hard copy $50, or CD $10 plus postage and handling) by contacting Jenny Baulis (jenny.baulis@dpiwe.tas.gov.au). It provides both current research results and several significant overview papers covering the whole spectrum of the wool industry and is well worth considering, if not for yourself, then at least for the library.

Forestry Tasmania

After 27 years with FT (the last 14 years managing the R&D Division) and reaching the ripe old age of 55 **Humphrey Elliott** is "retiring" to do some project work for FT and possibly others (i.e. become a small c consultant!). The project work will involve a wide range of topics but will include a research project in silviculture, entomology or a combination. Humphrey will still have a strong involvement with forestry in Australia through this project work and other tasks so he anticipates his retirement is likely to end up as nearly full time work but concentrated on a few projects.

Chris Palmer, an ANU PhD student, visited Tasmania for several weeks in July and climbed many mountain peaks searching for unusual and new species of Apteropanorpidae (Mecoptera). Chris went home with a smile on his face, maybe the success in collecting or just tasting Boags beer. **Dick Bashford** and **Owen Seeman** (DPIWE) attended the CHAEC meeting in Sydney prior to attending the AES Conference. The USDA Forestry Pest Risk Assessment team comprising **Dennis Haugen, Gregg DeNitto, John Kliejunas** and **Ed Podleckis** visited Tasmania for six days in September. Dennis worked in South Australia for several years on *Ips* and then Sirex and Dick reports that it was good to see an old friend. **Simon Grove** has just started working as conservation biologist for FT. His current projects include looking at the value of wildlife habitat strips for invertebrates, and the pro's and con's of different silvicultural options for managing wet eucalypt forest, particularly with regard to the log invertebrate fauna.

Department of Primary Industries Water and Environment

Owen Seeman reports that he did get to the Manly Australian Entomological Society conference, making up the massive Tasmanian contingent. He had a great time and presented his research on passalid beetles and their mites. Soon after returning to Hobart, Owen went to ANIC to attempt some identifications of weevils that attack young stonefruit trees in Tasmania. The time there was spent most usefully, and some of the old literature of Lea had some revealing treasures on the taxonomy and biology of the genus *Scotasmus*. He thanks **Rolf Oberprieler, Tom Weir, Chris Palmer**, and **Christine Lambkin** for their hospitality and generous assistance. Thanks to this trip, DPIWE now have a much better idea of what these weevils are up to in Tasmania. He also spent some time looking at passalid beetles, and managed to get some fedrizziid mites from passalids collected by **Pat Bouchard** while he was in New Caledonia. While in Canberra, Owen also attented a Diagnostic Workshop for Quarantine Pests of Honeybees. This one-day workshop allowed partcipants to be brought up-to-date with Denis Anderson's work on the splitting of *Varroa jacobsoni* into two species (*V. destructor*) and taught them how to slice up honeybees to look for tracheal mites. Meanwhile back in Tasmania Owen has been report writing for fumigations and preparing for a season of pest-surveys on cherry orchards from around the state.

With the arrival of spring and emergence of *Plutella* moths **Lionel Hill** has begun a second season's field work in brassica crops. Lionel and **Felicity Wardlaw**, an IPM extension officer, will be comparing thresholds for spraying used by practising commercial agronomists with those recommended by the national *Plutella* project. They will also be mapping the distribution of *Plutella* parasitoids across the state. Lionel and Owen have been preparing for a summer survey of ports of entry for red imported fire ant. They both continue to develop the pest records database, which fulfils international trade requirements and helps with management of the collection. Lionel continues to manage nurseries under quarantine for western flower thrips, which is limited to a few sites.

Geoff R. ALLEN

VICTORIA

Agriculture Victoria – Tatura

Chris Sheehan is a new addition to our team and will be working with **Alex Il'ichev** on the OFM project. Chris was formerly from Latrobe University and has completed a BSC with Honours in Botany. We were also lucky to have a visit from **Peter Ridland** and **Len Coop**, which prompted a number of interesting discussions. **Hugh Fraser** a colleague of **Graeme Murphy** from Ontario in Canada also visited the institute. The plant protection team has also been analysing the results of experiments that were held over summer to prepare us for the next planning phase, which will start soon.

Members of plant protection team at Tatura are becoming seasoned travellers. In the past few months **Mofakhar Hossain, Alex Il'ichev and David Williams** have been flying around the globe presenting information and linking up with other scientists. A report of all these endeavours will be forthcoming in the next issue.

Institute for Horticultural Development, Knoxfield

Mali Malipatil participated in the symposium "Systematics and biology of Trichogrammatidae and Aphelinidae" held at University of California, Riverside (UCR), 18-19 June 2001. He presented a poster on wasp parasitoids of Australian citrus scale insects and mealybugs, based on the book "An illustrated guide to the parasitic wasps associated with citrus scale insects and mealybugs in Australia" published last year. Following the symposium, he had discussions with various visiting specialists and UCR entomologists on issues such as biocontrol agents for citrus pests and vectors of Pierce's diease of grapevine with a view to developing resources at Knoxfield. He also spent a few days in the UCR Entomology Research Museum and Los Angeles Natural History Museum examining specimens of parasitoids and hemipterans.

Mali and **Kyla Finlay** participated in the National Pest and Disease Database Workshop organised by the Office of the Chief Plant Protection Officer, AFFA, Canberra during 28 - 29 June 2001.

In June and July, **Peter Ridland** has been hosting **Dr Len Coop** as a Visiting NRE Fellow. **Len** is from the International Plant Protection Center, Oregon State University, Corvallis, Oregon, USA and he has been involved in research and extension related work in IPM (Integrated Pest Management), particularly in the areas of systems modelling and decision support systems since 1987. In recent years, he has developed webpages to provide access to near-time weather data and a range of phenology models for use by growers and IPM scientists in the NorthWest USA. http://

www.orst.edu/Dept/IPPC/wea/ . He currently links 500 online weather stations with degree-day models for 24 insect, 3 disease, 1 pheromone lure breakdown and 16 crop species. http://ippc2.orst.edu/cgi-bin/ddmodel.pl . He has also developed improved online daily degree-day maps of Oregon, which can be easily accessed by users. During his short visit to Australia, he made great strides in developing a prototype degree-day forecasting site for Victoria. While in Victoria, **Len** gave a series of seminars and workshops to NRE scientists at Knoxfield, Rutherglen, Tatura and Horsham. At the conclusion of his visit, **Len** and **Peter** visited Brisbane to discuss weather data issues with **Alan Beswick** and colleagues of Queensland Department of Natural Resources and Mines. They also spent time with **Bob Sutherst** and **Gunther Maywald** at CSIRO Entomology, and **Wayne Rochester, Geoff Norton** and **Myron Zalucki** at UQ.

Keith Turnbull Research Institute, Department of Natural Resources and Environment (Victoria)

Raelene Kwong and **Kerry Thomas** have been busy with the KTRI Schools Program. Students at twelve primary schools around the State have been rearing biological control agents and conducting releases in conjunction with Landcare groups, Department of Natural Resources and Environment (NRE) and Parks Victoria officers, and local government authorities. The agents are Gorse spider mite, *Tetranychus lintearius*, Bridal creeper leafhopper, *Zygina* sp., and Bridal creeper rust, *Puccinia myrsiphylla*. Raelene also reports that NRE and Horticulture Australia Ltd. have jointly funded releases of *Zygina* sp. and *P. myrsiphylla* in citrus orchards, where Bridal creeper is a serious weed.

David McLaren visited a site at Euroa where Paterson's curse flea beetle, *Longitarsus echii*, has established. **Tom Morley, John Stoner** and **Troy Gallus** had confirmed establishment of this agent at the Euroa site, and one other site, in northeast Victoria. Establishment of *L. echii* in Victoria had been uncertain until these recent observations. Also in northeast Victoria, David reports that the crown boring weevil, *Mogulones larvatus*, appears to be impacting on Paterson's curse infestations

Darren Ward has recently left KTRI to return to his native New Zealand. Darren conducted European wasp baiting trials in vineyards this year as part of a project jointly funded by NRE and the Grape and Wine Research and Development Corporation.

The City of Melbourne has sponsored a trip by **Greg Lefoe** to Berkeley, California. Greg will visit **Don Dahlsten** at the University of California's Biological Control Division during late October. The aim of the trip is to collect the elm leaf beetle parasitoid, *Erynniopsis antennata*, and study Californian projects aimed at the biological control of arthropods.

The NRE Chief Scientists have awarded a travel grant to **Tom Morley** under the NRE Scientific Exchange program. Tom will use the grant to partially fund a six-month project in South Africa. Tom will be based in Stellenbosch where he will test the host range of the Boneseed leaf buckle mite, *Aceria neseri*. Tom joins two other KTRI biocontrol researchers, **Robin Adair** and **Penny Gillespie**, who are currently based in South Africa.

Also overseas is **John Weiss** who is presenting papers on the biological control of blackberry, and weed assessment, at conferences in the UK and USA. While in the US, John will meet with **Don Strong** at UC Davis, who is studying the impact of native insects on *Spartina* infestations in the western USA.

IPM Technologies P/L

Field work outdoors has entered its usual winter low, giving **Cindy Edward** and **Paul Horne** a little more time than usual. They have had good results with their IPM work in lettuces and brassicas last season, and will continue that work this coming season. Applying IPM to glasshouse crops continues over winter, with a couple of large sites adding to the list of those wanting to try and use IPM again, after attempting it and giving up many years before, due to lack of support. Paul and Cindy met up with **Stewart Learmonth** during his recent tour of the eastern sites, meeting potato farmers interested in the new soil pests project that Stewart is leading. They had a good meeting with all members of the national project at the offices of Horticulture Australia in Sydney in mid July. In early August, Paul is attending the annual meeting of the ABC, Australasian Biological Control, in Caloundra where the newest member of the association (**Paul Jones**) runs his business. He will visit **Dan Papacek** in Mundubbera with **James Altmann** immediately beforehand.

Martina Bernard and **Paul Horne** will continue their work with table grape growers this spring and summer, with a larger group interested following the IPM demonstration trials conducted last season. Further demonstration trials will be

carried out, investigating the potential of augmentative releases of *Cryptolaemus* ladybirds and *Mallada signatus* to help control mealybugs.

Cathy MANSFIELD

Bee-ing in South Africa

Ken Walker of Museum Victoria spent October in South Africa. He was funded by the National Geographic Society, together with three other bee specialists, Bryan Danforth, Connal Eardley and Laurence Packer. They are studying the historical biogeography and sociality of African halictine bees, and this was the first of three field trips. Ken says that they covered 5000 km in 21 days, and he collected nearly 800 bees from 42 sites, representing more than 30 genera. The area where they worked has a mediterranean climate, and has more flowering plant species per unit area than anywhere else in the world. The winter rainfall area of South Africa includes semi-desert, such as Namaqualand, the Knersvlakte, and the Richtersveld National Park; these constitute the Succulent Karoo ecoregion. Approximately 40% of the plant species in this habitat are endemic and roughly one third of the world's species of succulent plants grow here. Further south they visited the fynbos region in the southernmost portion of Western Cape Province. This receives more rainfall than the Succulent Karoo and also has a high diversity of flowering plants. There are over 8,500 species of plants in the fynbos region, 70% of them endemic. Both areas are rich in bee species, but the halictid bees have not been carefully studied. These bee faunas are biologically distinctive, but are threatened by large scale agriculture. Much further bee work could be done in the area, with its distinct flora, sandy soil, varied topography, and unpredictable rainfall patterns. Ken's next trip is planned for February, to the summer rainfall areas in the eastern part of the country. He says that the trip provided an opportunity for scientists from three different continents, and with diverse expertise, to discuss their preliminary results. This resulted in criticism of existing hypotheses, as well as new research ideas. Thus the trip was also a precursor to the development of further research initiatives.

LAM

Entomological Society of Victoria

Alena Glaister spoke to our August meeting on her specialist topic of Aquatic Insects. She covered most of the common orders illustrating many species and discussing how they cope with the vagaries of their aquatic environment. Plans are being made to visit some of her collecting sites in summer.

The journal has included articles on butterfly observations in Queensland and New South Wales, a report of a running-water dragonfly species in still water, and a summary of a long term study of beetles attracted to light. Also included have been the tables of contents of publications received under exchange.

We were represented at the AGM and Conference in Manly by our treasurer, **Ian Endersby**, specifically briefed to support the AES Treasurer in his onerous task.

Ian ENDERSBY

WESTERN AUSTRALIA

Agriculture Western Australia

Rob Emery and **Ernestos Kostas** spent a few days in April in Wagga Wagga, hosted by **Barry Wallbank** for a grain insect resistance workshop.

Rob's grain storage group has had a change of staff with **Romolo Tassone** and Ernestos Kostas leaving. Romolo has gone into early retirement while Ernestos has moved to a position as Pest Control Supervisor with Co-operative Bulk Handling (WA). **Natalie Keals** and **Simi Bhullar** have replaced the boys.

Rob and his team had an "award winning" month of May receiving awards for Rob's 20 years of service, Technical Innovation and Excellence awards for the Phoscard farm fumigation detector and a team award for the Hortguard Grainguard initiatives. The big award for the Entomology group was collected by Rob and **Natarsha Zilm** in Canberra for the National Quarantine Awards, Media and Education Category for the contribution of the AGWEST Insect Reference Collection Database and website.

In June Rob spent a week in Melbourne for the National Working Party on Grain Protection workshop followed by two days in Canberra to discuss development of National Plant Pest and Disease database.

Françoise Berlandier reports large outbreaks of the diamondback moth, *Plutella xylostella*, have been recorded in the northern parts of the Western Australian wheatbelt causing significant damage to canola crops. Françoise and **Kevin Walden** have formulated an emergency response package for growers trying to battle with this pest which is usually a serious problem only in horticultural brassicas.

Curtin University of Technology

Jonathan Majer has been promoted to head of the School of Chemical and Biological sciences. He and his research associate, **Brian Heterick**, are

completing analysis of an astonishing range of invertebrates - approximately 1250 spp - collected from the bark of just four species of eucalypts (120 trees). Of five current postgraduate students with an entomological bent, three (**Lubomir Bisevac**, **Karl Brennan** and **Erich Volschenk**) are making steady progress as they seek to complete their PhD's.

A fourth, **Melinda Moir**, is in her second year of PhD studies researching bugs in rehabilitated bauxite mines: we are looking forward to adding expertise in Hemiptera to augment that we already have in ants, spiders and Collembola! Finally, Jonathan travelled to Vera Cruz, Mexico, to check out the fifth postgraduate student, **Aaron Gove**, whose PhD research involves ant communities in deciduous rainforest.

CSIRO Entomology

Owain Edwards and **James Ridsdill-Smith** attended the 7th International Symposium on Aphids in Rennes, France in early September. They must now begin preparations for the next meeting in Fremantle in 2005. Owain also visited **Martin Williamson** and **Hugh Loxdale** at the Rothamsted Institute in Harpenden, UK to discuss ongoing collaborative research. Both James and Owain returned to CSIRO in new roles: James is now Strategic Director – Agribusiness and Owain is now Project Co-ordinator for Pest Management in Field Crops.

John Klingler recently joined the CSIRO Entomology team in Perth from the University of Arizona as a post-doc. He is investigating plant defence against aphids in the model legume *Medicago truncatula* in collaboration with **Karam Singh** in CSIRO Plant Industry.

Tim Woodburn had a quick trip to South Africa during September, basically to catch up with **Petra Muller**, CSIRO's sole representative in their Biological Control Unit located within the University of Cape Town. Petra is a busy person! She is primarily searching for biological control agents for Cape tulip, but somehow manages to provide expert advice on a range of weeds of concern in Australia and New Zealand. For example, currently she is teaching/supervising **Chris Winks** from Landcare Research in New Zealand how to rear/host test the moth *Tortrix* for boneseed control. Tim was really impressed to see how very rare bridal creeper is in its home range, as have other researchers from Australia before him!

Louise Morin's rust fungus for bridal creeper is doing very well in WA this season, with reasonable spread occurring in the second year from release. There has been impressive defoliation at a release site. Damage due to the leafhopper is now beginning to show up, with white columns of the weed being reasonable common - but not at the same places as in previous seasons!

John Matthiessen was the only representative of CSIRO Entomology in Perth at the 2001 AES Conference in Manly. John officially presented the bid from WA to hold the next AES AGM and Conference at the Esplanade Hotel in Fremantle 22 - 27 September 2002. John is on the organising committee with Owain, **Terry Houston**, Jonathan, and **Debbie Thackray**.

WA Museum

In June, Argyle Diamond Mines donated two entomological cabinets full of insects from their Kimberley mine site. The collection comprised 2876 pinned specimens and 116 lots in alcohol collected by **Tony Postle**. Twenty one orders of insects are represented among the specimens.

Owain EDWARDS

PAPUA NEW GUINEA

The annual coconut research review meeting was held at the Stewart Research Station at Madang, 2-3 October. Coconut entomology occupied an afternoon session with the Head of CCRI entomology, Dr Samson Laup, outlining the development of suitable traps using the recently synthesized male pheromone of *Scapanes australis*. Dr Laup is yet to come up with a multipurpose trap that can use the pheromones of *S. australis*, *Oryctes rhinoceros* and *Rhynchophorus bilineatus* along with a food attractant and trap a large number of these beetles. The trap must be cheap and capable of being assembled by farmers from local materials.

While the devastation of coconut palms by *S. australis* in the Islands regions continues, the *Sexava* grasshoppers have resurfaced as serious pests of coconut palms in the Umuru seed gardens. Mass rearing and release of the hymenoptorous parasite, *Leefmansia bicolor* is now under question. It seems that this parasite doesn't have strong enough ovipositor to penetrate the soil layer and oviposit in *Sexava* egg pods. The import of scelionid parasites from Australia to do the job was suggested.

The meeting also heard that since 1997 the weevil coconut base borer, *Sparganobasis nuberuciatus* and the pyralid moth *Tirathaba rufivena* have become serious pests of tall collections of the ICG-SRS and dwarf hybrids respectively. The meeting was told of the need to have an additional

entomologist for coconut entomology but no additional funding is available. The first Plant Protection Workshop of PNG has been postponed to 12-14 Feb. 2002.

Science in New Guinea Volume **26** appeared last month and has the following entomological articles:

1. Effects of aqueous neem and *Melia azedarach* extracts on the early development of *Eurema blenda* (Lepidoptera: Pieridae).
2. Observations on the aggregation behaviour of *Arcte coerula* Guenee (Lepidoptera : Noctuidae).
3. Distribution and host plants of three genera of Papua New Guinea Oncomerinae (Heteroptera: Pentatomoidea: Tessaratomidae).
4. The larval development sites of the Melanesian coconut beetle *Scapanes australis* Boisduaval (Coleoptera: Scarabaeidae: Dynastinae) in Papua New Guinea.
5. The release and establishment of *Calligrapha pantherina* in the Markham Valley.
6. Extension note: Beetles offer sustainable control of *Sida* spp. weeds.

Further details from the editor, Ray Kumar.

Ray KUMAR

OBITUARY

Stanley Glen Watkins (1931 – 2001)

Stan Watkins died at Lismore on 12th June after a long illness and will be sadly missed by his friends and colleagues. He was born at Laguna Beach, California, and began collecting beetles as a teenager. His special interest was geographical variation in species of *Cicindella* occurring in south-western U.S. Most of his early collecting trips were made in the company of Buprestid specialists, notably Dave Verity. When Cincindellids were scarce, he collected Buprestid specimens, and thus gained an interest in the group. Later he took the undergraduate course in Entomology at University of California, Berkeley, during which he was taught by two very well known entomologists, E.G.Linsley and R.L.Usinger. His major was in histology, and he studied this under Frances Weesner. On graduation he was employed as an industrial chemist for some time, before leaving to go on a four-month collecting trip to British North Borneo (Sabah). He returned to San Francisco, and was appointed histologist to the G.W.Hooper Foundation, University of California, where he was later was in charge of the histology laboratory until 1971. During that time he met and married Rosalie, a migrant from South Africa and also an histologist. They later moved to Sydney, where Stan was employed to run the histopathology laboratory at the Department of Medicine, University of NSW. He retired in 1987. Because of our depauperate Cincidellid fauna, Stan again began collecting Buprestids. After retirement he moved to a country property near Taree, in the heartlands of Buprestid country in NSW. Eventually he moved to the suburbs of Lismore.

I first met Stan at the end of the 1980s, and went on several collecting trips with him. He was a consummate collector, and entertaining company in the field. The only long trip that I made with Stan was to Onslow in WA in 1989. On the way over we called in at Balladonia Station to visit Mrs Amy Crocker, the notable artist and insect painter. On seeing Stan with his long white beard she instantly piped up with 'Hello Father Christmas', which got a hearty response. After that trip I was in touch with Stan regularly by letter or telephone. He was extremely generous with material, and it was a pleasure to receive his specimens because these were always immaculate. His extensive collection of nearly 50,000 specimens of foreign and Australian beetles and cicadas has been donated to the ANIC at CSIRO Entomology, according to his wishes. He is survived by his wife Dr Rosalie Watkins and their son Wolfgang.

Shelley BARKER

NOTICES

International IPM Conference: Exploring New Frontiers in Integrated Pest Management
Toronto, Canada. March 24 to 26, 2002
Contact: Margaret Appleby, IPM Systems Specialist, OMAFRA, 95 Dundas St., R.R.#3 Brighton ON, Canada K0K 1H0,
Tel: 613-475-5850 Fax: 613-475-3835
<Margaret.Appleby@omafra.gov.on.ca><http://www.gov.on.ca/OMAFRA/ipmconference/>

2nd International Congress on Phthiraptera
8-12 July 2002, University of Queensland, Brisbane. See: www.imb.uq.edu.au/ICP2

3rd International Forest Canopy Conference
Cairns International Hotel, Queensland,
23 - 28 June 2002
http://www.premiers.qld.gov.au/about/science/canopyconference/

6th International Symposium on Fruit Flies of Economic Importance
6 - 10 May 2002. Stellenbosch, South Africa. Further information: Eugene Booysen, Cape AgriTours
e-mail: agritour@adept.co.za

A.E.S. PHIL CARNE PRIZE

The Executive takes pleasure in announcing The Australian Entomological Society's Phil Carne Prize. This prize honours contributions made by Dr Phil Carne to the science of entomology and to The Australian Entomological Society, and is intended to foster high-quality entomological research among young scientists

The prize is open to any undergraduate or postgraduate who has submitted a paper to the **Australian Journal of Entomology** and had it accepted for publication within the last year. Entrants may be enrolled full or part-time, and are not required to be members of The Australian Entomological Society. Entries will be reviewed by the normal Journal referring process. The Chief Editor will advise the Executive of the eligible papers and these will be presented to a selection committee appointed and convened by the Vice-President of the Society.

The winner will be invited to present the winning paper at the Society's Annual General Meeting and Scientific Conference. The prize will be $300 plus free conference registration, accommodation, return airfare to the Annual Conference and presentation of a scroll.

Manuscripts and other editorial correspondence should be addressed to Dr Peter Allsopp, Chief Editor, Bureau of Sugar Experiment Stations, Private Bag 4, Bundaberg DC 4670, Australia.

5th International Congress of Dipterology

September 30 – October 5, 2002
University of Queensland, Brisbane

The International Congress of Dipterology will bring together 300 researchers from a broad range of disciplines to discuss the latest research on Diptera (true flies). The Program will be designed to provide a unique environment in which to discuss current research. Themes will include: Morphology, Physiology and Ultrastructure; Biodiversity and Conservation; Agricultural Diptera; Behaviour and Ecology; Medical, Veterinary and Forensic Diptera; Systematics and Phylogeny; Genetics and Genomics; Collections and Databases

Please see our web site at http://www.uq.edu.au/entomology/dipterol/diptconf.html

ICD5 Congress Secretariat, Conference Connections, PO Box 108, Kenmore, Queensland, Australia 4069; Fax (61 7) 3201 2809; email sally.brown@uq.net.au

Technical Training Course ANIC, Canberra

Staff of the Australian National Insect Collection provide a training course for entomological technicians working with research collections of insects and related organisms for taxonomic study and identification. This course is designed to teach participants how to collect, prepare and curate entomological material to a stage ready for identification. The course comprises a series of demonstrations on these aspects as they relate to the major orders of insects and related arthropods. Specimen identification is not covered in the course. All demonstrations are conducted by ANIC staff expert in the area of concern. The next course will be held 23 - 27 September 2002, at the CSIRO Entomology Black Mountain Laboratories, Clunies Ross St, Acton, ACT 2601.

For more information contact Graham Crompton, ANIC Manager
Phone: (02) 6246 4036
Fax: (02) 6246 4264
Email: graham.crompton@ento.csiro.au
http://www.ento.csiro.au/products/products.html#training

THE AUSTRALIAN ENTOMOLOGICAL SOCIETY INC.
NOMINATION FOR MEMBERSHIP

Please return to: Ms Nancy Endersby, AES Secretary, c/o Institute for Horticultural Development, Private Bag 15, Ferntree Gully Delivery Centre VIC 3156 AUSTRALIA

We, the undersigned

Proposer .....
(print name) (signature)

Seconder .....
(print name) (signature)

being financial members of the Society, propose the following for membership of the Australian Entomological Society Inc.

Title.....Initials.....Given name.....Family name.....

of (Address) .....

.....Post Code.....

Tel. .....Fax .....

E-mail ..... Degrees, etc. .....

Interests, experience and publications in entomology for publication in the News Bulletin *Myrmecia* (please attach brief resumé) .....

I accept nomination and undertake, if elected, to abide by the rules of the Society and to pay annual subscriptions by the date prescribed.

Signature ..... **Date** .....

For **2002**: Annual subscription $93.50; full-time student or retired members $46.75 (incl. GST)
New members receive a first year rebate of $5.00 (pay $88.50) and students $2.50 (pay $44.25).

Students please attach proof of full-time student status

Payment in Australian dollars is required with nomination and may be made by MONEY ORDER, CHEQUE (made payable to Australian Entomological Society Inc.) or CREDIT CARD

Bankcard Visa Mastercard

Cardholder Name _____
Number _ _ _ _ _ _ _ _ _ _ _ _ Expiry date _ _/_ _

Signature _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ I require a receipt YES/ NO

COUNCILLORS

Australian Capital Territory
Dr Martin Steinbauer
CSIRO Entomology
GPO Box 1700
Canberra, ACT, 2601
Ph (02) 6246 4090
Fax (02) 6246 4155
Martin.Steinbauer@ento.csiro.au

Dr E. Jane Wright
CSIRO Entomology
GPO Box 1700
Canberra ACT 2601
Ph (02) 6246 4183
Fax (02) 6246 4202
e.jane.wright@csiro.au

New South Wales
Dr Robert Spooner-Hart
School of Horticulture
University of Western Sydney
Richmond NSW 2753
Ph (045) 701 429
Fax (045) 701 314
r.spooner-hart@uws.edu.au

Dr M.J. Fletcher
Orange Agricultural Institute
Forest Road
ORANGE NSW 2800
Ph (02) 63913943
Fax (02) 63913899
murray.fletcher@agric.nsw.gov.au

Dr Robin Gunning
NSW Agriculture
RMB 944
Calala Lane
TAMWORTH NSW 2340
Ph (02) 6763 1128
Fax (02) 6763 1222
rgunning@enternet.com.au

Northern Territory
Mr Martin Shivas
7 Bamboo St
Nlghtcliff
NT 0810
Ph (08) 8948 2973 (h)
mshivas@bigpond.com

Queensland
Ms Kylie L. Anderson
NAQS AQIS
28 Peters Street
Mareeba QLD 4880
Ph (07) 40928405
Fax (07) 40923593
kylie.anderson@aqis.gov.au

Brad Scholz
Farming Systems Institute
Queensland D.P.I.
203 Tor Street (P.O. Box 102)
Toowoomba Qld 4350
Ph (07) 4688 1312
Fax (07) 4688 1199
scholzb@dpi.qld.gov.au

Dr. Heather Proctor
Australian School of Env. Studies
Griffith University
Nathan Qld 4111
ph (07) 3875-3844
fax (07) 3875-7459
H.Proctor@mailbox.gu.edu.au

Papua New Guinea
Prof. R. Kumar
Biology Dept, UPNG
Box 320, University P.O.
National Capital District
PAPUA NEW GUINEA
Ray.Kumar@upng.ac.pg
Ph (675)3267630/210
Fax: (675) 3260369/3267187

South Australia
Dr John Jennings
Dept Appl. & Molecular Ecology
Waite Campus, Uni. Adelaide
Glen Osmond SA 5064
Ph 08 8303 7277
Fax 08 8379 4095
J_JENNINGS@onaustralia.com.au

Tasmania
Dr Geoff R. Allen
School of Agricultural Science,
University of Tasmania,
GPO Box 252-54,
Hobart, TAS 7001
Ph (03) 6226 2732
Fax: (03) 6226 2642
Geoff.Allen@utas.edu.au

Victoria
Dr Ross Field
Museum Victoria
PO Box 666E
Melbourne Vic 3001
Ph (03) 8341 7430
Fax (03) 8341 7430
rfield@museum.vic.gov.au

Ms Catherine Mansfield
Institute for Sustainable Irrigated Agriculture
Private Bag 1
Tatura Vic 3616
Ph (03) 5833 5225
Fax (03) 5833 5229
Cathy.Mansfield@nre.vic.gov.au

Western Australia
Dr Owain Edwards
CSIRO Mediterranean Agric Res
Private Bag PO Wembley
Western Australia 6014
Ph 08 9333 6401
Fax 08 9333 6646
o.edwards@ccmar.csiro.au

SOCIETY REPRESENTATIVES

Entomological Society of New South Wales
E.E. Taylor
5 Endeavour Avenue
La Perouse
NSW 2036

Ent. Society of Queensland
Dr J. King
QDPI Forestry Service
PO Box 631
Indooroopilly Q 4068
Ph (07) 3877 9716
Fax (07) 3371 2217

Entomological Society of Victoria
Mr Ian Endersby (acting)
56 Looker Road
Montmorency VIC 3094
Ph (03) 9435 4781
endersby@mira.net

SOCIETY HONORARY MEMBERS
Dr B.R. Champ
Dr I.F.B. Common
Dr E.N. Marks
Dr K.R. Norris
Dr C.N. Smithers
Dr D.F. Waterhouse

MACKERRAS MEDALLISTS
1984 Dr J.A.L. Watson
1986 Dr R.W. Sutherst
1988 Dr T.R. New
1990 Dr R.A.I. Drew
1992 Dr E.S. Nielsen
1996 Dr M.P. Zalucki
2000 Dr P.G. Allsopp

IMMEDIATE PAST PRESIDENT
Dr Jim Cullen
CSIRO Entomology
GPO Box 1700, CANBERRA ACT 2601

***MYRMECIA* EDITOR**
Laurence Mound
laurence@ento.csiro.au

ASSISTED BY:
Tish Silberbauer: lsilberb@metz.une.edu.au

CONSERVATION COMMITTEE
The Vice President & Secretary are *ex officio* members of the Conservation Committee

Prof Jonathan Majer
School of Environmental Biology
Curtin University of Technology
GPO Box U1987
Perth WA 6845
Ph (08) 9266 7041
Fax (08) 9266 2495
imajerj@info.curtin.edu.au

Dr T. New (Vic)
Ph (03) 9479 2247
Fax (03) 9478 1551
zootn@zoo.latrobe.edu.au

Claire Stephens (SA)
Ph (08) 8303 7276
Fax (08) 8379 4095
cstephens2@waite.adelaide.edu.au

Dr A. N. Andersen (NT)
Ph (089) 448431
Fax (089) 448444
Alan.Andersen@terc.csiro.au

Dr R. V. Gunning (NSW)
Ph (02) 67631128
Fax (02) 676322
rgunning@enternet.com.au

Dr D. P. Sands (Qld)
Ph (07) 32142803
Don.Sands@brs.ento.csiro.au

Printed by:
GOANNA PRINT
151-155 Gladstone St.
Fyshwick ACT 2609
Fax (02) 6280 7369

Distributed by:
Blackwell Science Asia
54 University St
CARLTON VIC 3053
Ph (03) 9347 0300